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ABSTRACT

This information processing curriculum was developed to provide business education instructors in Illinois with a useful guide for relating important new technological advances to the vocational classroom. The competency-based learning activity guides are written to be used with computer hardware and software available at the secondary and postsecondary levels. The curriculum consists of validated tasks prepared by teachers for teachers. It contains units in spreadsheets, records management (electronic and manual), database management systems, business graphics, telecommunications, and integrated software. Each section is divided into tasks. After the learner outcome is identified, information sheets, activity sheets, and evaluations are provided. Appendixes include (1) an analysis of the science, mathematics, communications, and work ethic concepts used in information processing and (2) a crosswalk relating work duties and tasks (delineated by the state board of education) with the learner outcomes presented in the various sections of the information processing guide. (KC)

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Education for Technology Employment

Illinois State Board of Education

Adult
Vocational and
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INFORMATION PROCESSING

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ETE INFORMATION PROCESSING

PREFACE

The State of Illinois recognizes that technology skills are needed by teachers in the classroom. The need was addressed by allotting funds for a grant called Education for Technology Employment (ETE). ETE is composed of many fields which include Information Processing (IP), Computer Aided Design (CAD), Computer Aided Manufacturing (CAM), Electronics, and Home Economics. Dr. Jule Dee Scarborough of Northern Illinois University is the director of this grant.

Information Processing consists of validated tasks prepared by teachers for teachers. It consists of units in telecommunications, records management (electronic and manual), spreadsheets, integrated software, data base, business graphics, and the use of the modem. Each sector is divided into tasks. After the learner outcome is identified, information sheets, activity sheets, and evaluations are provided.

The teachers were invovled with the four phases of this grant: determine the learner outcomes, write and edit the competency-based materials, provide awareness sessions, and disseminate the learning guides to business educators for classroom use. During the 1985-86 school year, the business educators who developed these materials were able to test the learning guides with appropriate software and also field test in classrooms with secondary and junior college students.

Awareness is the next phase of this ETE project. Actually, awareness has been going on since the Spring of 1986. This phase includes sessions at the local, regional, and state levels. Teachers involved in the preparation of these materials have been making presentations at various business education conferences.

The final stage of this ETE project is dissemination. A subcommittee of the writing group has developed a presentation for on-site workshops. These teachers will train the business educator on the use of these learning guides, using the local school's equipment and software.

CURRICULUM These learning guides were designed to provide the basic concepts of information processing, to be included wherever convenient in the individual school district's curriculum, either as separate modules or the entire package. However, it is preferable to complete the electronic spreadsheet modules first because the computer graphics and integrated software modules use spreadsheets created in the spreadsheet modules. These learning guides may be used with group instruction or individualized instruction. Within each module, such as electronic spreadsheets, the learner outcomes are arranged in hierarchical order so that all learning builds on previous learning and projects completed. Each learning guide begins with a list of learning steps and ends with an exam and/or a performance/product checklist.

These materials do not include word processing as that area has been covered thoroughly by other projects.

GRADE LEVEL

These materials were designed to be used with business students in grades 11-14. They are not recommended for general education courses.

PREREQUISITES

Students using these learning guides should have some competency in the following areas: keyboarding, general business and computer literacy. Accounting would also be helpful.

TIME ELEMENT

The length of time indicated for each learning guide is a rough estimate only and will probably need to be revised for each learning situation. The time estimates may seem generous; we tried to allow plenty of time for the slow learner to complete the assignment.

GENERIC

Anticipating that individual school districts would be using a variety of hardware and software, these learning guides were written in a generic manner. They do not provide specific instructions for using specific software. They do, however, provide an awareness of a variety of terminology and capabilities of information processing software.

SOFTWARE SPECIFIC

These learning guides are lacking software specific instructions. Therefore, prior to use, specific instructions for using the individual school's software must be inserted where appropriate in these materials. Equipment manuals and software manuals must be available for reference in the classroom.

INSERVICE Teachers must be comfortable with the school's equipment and software before using these learning guides with students. Therefore, it may be necessary to provide the teacher with training on the software equipment. Also, it is highly recommended that the teacher work through the learning guides (as the students would) prior to use with the class.

CRITICAL ITEMS Certain items on the Performance/Product Checklist have been marked with an asterisk indicating that they are "critical items." These items must be completed satisfactorily in order to master this task.

RESOURCES A list of resource publications is included. Software used by the writing committee included: Lotus 1-2-3, Appleworks, VisiCalc, dBase II and III, SuperCalc III, Framework, Symphony, the IBM Assistant Series, included the PFS Series, and the Netmaster. Personal computers used by the committee included IBM, Apple, Tandy, and Radio Shack.

FORMAT The software used may result in variations and restrictions in formatting; i.e., outline spacings/indentations, underscoring, and margins.

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Illinois State Board of Education

Department of Adult, Vocational and Technical Education
Research and Development Section

Product Abstract

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2. Date material was completed 1/12/87
3. Please check one: New material X Revised material ____ Field-tested material ____
4. Originating agency Northern Illinois University

Address Department Of Technology DeKalb, Illinois Zip Code 60115

5. Name(s) of developer(s) Brownstein, Butler, Curry, Cuyler, Harder, Harriss, Hood, Kepka, Marvel McDonald, Owens, Parker, Pekar, Robinson, Sailes, Shoop Swanson, Vanderwall, Vinson, Williamson

Address ____ Zip Code ____

6. Developed pursuant to Contract Number 77-RH-491

7. Subject Matter (Check only one according to Department of Education Code):

Code

____ 01 Agricultural Education
X 03 Business and Office Education
____ 04 Distributive Education
____ 07 Health Occupations Education
____ 09 Home Economics Education
____ 10 Industrial Arts Education
____ 16 Technical Education
____ 17 Trade and Industrial Education
____ 22 Cooperative Education
____ Career Education
____ Other (Specify) ____

8. Education Level:

____ Pre-K Thru 6 ____ 7-8 X 9-10 X 11-12
X Post-Secondary ____ Adult X Teacher (Pre-service)
____ Administrator (Pre-Service) ____ Other (Specify) ____

9. Intended for Use By:

____ Student X Classroom Teacher ____ Local Administrator
____ Teacher Educator ____ Guidance Staff ____ State Personnel
____ Other (Specify) ____

10. Student Type:

X Regular ____ Disadvantaged ____ Handicapped
____ Limited-English Proficiency ____ Other (Specify) ____

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16. General Description (State the general objective and suggested method of use. Summarize the content and tell how it is organized. Continue on back of this sheet or on another sheet, if necessary.):

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X

FOREWORD

This Information Processing curriculum has been developed to provide business education instructors with a useful guide for relating important new technological advances to the vocational classroom. The competency-based learning activity guides are written to be used with computer hardware and software available at the secondary and post-secondary levels. Each instructor must add to the existing activity sheets specific instructions for operating their own equipment.

Illinois teachers developed these instructional materials based on information obtained from business and industry. The curriculum was field-tested in 25 secondary and post-secondary Illinois schools during the 1985-86 school year.

The Illinois State Board of Education is committed to assisting Education for Employment regions in the development of quality vocational education programs. The activities outlined in this product have been designed to better prepare persons for employment and/or further education in business-related occupations.

Sincere appreciation is extended to the vocational educators and industry representatives who assisted in the development and field-testing of the Information Processing curriculum.

Ted Sanders

Ted Sanders
State Superintendent of Education

ELECTRONIC SPREADSHSEETS

ELECTRONIC SPREADSHEETS

PREFACE

This learning activity packet on electronic spreadsheets is designed for use by high school or junior college students as they learn the basic concepts of spreadsheets. The material is written in generic form and may be adapted for use with a number of software packages; such as, Lotus 1-2-3, Perfect Calc, PFS: Plan, Multiplan, etc. The instructor will need to merge these materials with the manuals from the software purchased.

IDENTIFY AND USE ELECTRONIC SPREADSHEETS

Learner Outcome Number	Learner Outcome
A 1	Identify the Uses and Advantages of Electronic Spreadsheets
A 2	Load and Exit DOS and Spreadsheet Software
A 3	Identify the Basic Components of Spreadsheets and Operate Special Function Keys
A 4	Print a Spreadsheet
A 5	Enter Data on an Existing Spreadsheet and Store the Spreadsheet
A 6	Design, Enter, and Save Data on Spreadsheets
A 7	Recall, Modify and Print a Spreadsheet
A 8	Design a Spreadsheet Containing Formulas
A 9	Use Window and Title Options on a Spreadsheet
A 10	Build a Supporting Spreadsheet
A 11	Combine Spreadsheets
A 12	Evaluate Spreadsheet Software
A 13	Glossary

INFORMATION PROCESSING

Area: Identify and Use Electronic Spreadsheets

Learner Outcome A 1: Identify the Uses and Advantages of Electronic Spreadsheets

Purpose: Businesses are currently using electronic spreadsheets to prepare expense reports, sales forecasts, financial statements, budgets, etc. This learning guide will introduce the basic concepts of electronic spreadsheets.

Objective: Given a written exam, you will identify common uses for electronic spreadsheets and list the advantages of electronic spreadsheets. To master this learner outcome, you must answer 13 out of 15 items correctly, or 87%.

Estimated Class Time: 1 hr.

Learner Outcome A 1

Identify the Uses and Advantages of Electronic Spreadsheets

LEARNING STEPS

READ: Information Sheet A 1.1, "Uses and Advantages of Electronic Spreadsheets."

COMPLETE: Activity Sheet A 1.2, "Uses and Advantages of Electronic Spreadsheets."

CONTACT: Instructor for evaluation of your written work.

COMPLETE: Written Exam A 1, "Identify the Uses and Advantages of Electronic Spreadsheets."

CONTACT: Instructor for evaluation of your written work.

INFORMATION SHEET

A 1.1

Uses and Advantages of Electronic Spreadsheets

In our daily lives, each of us must use numbers, arithmetic operations, and calculations. These problems can be solved with mental computation, pencil and paper, calculators, or computers.

While shopping, you might mentally calculate the price of an item in comparison to money available. The salesclerk may also use pencil and paper to total the sale and calculate taxes. In medium-size operations a cash register or calculator will perform the operations. Larger businesses usually solve these problems on computerized cash registers.

Software packages that create spreadsheets are one of the most useful management tools microcomputing offers. For many businesses, the need to create spreadsheets justifies purchasing a microcomputer.

Businesses are currently using electronic spreadsheets to prepare expense reports, sales forecasts, financial statements, and budgets. Some commercially available software packages include Lotus 1-2-3, Supercalc III, Multiplan, VisiCalc, and PerfectCalc.

Spreadsheets are useful in a wide variety of applications. Asking "What can I do with a spreadsheet?" is like asking "What can I do with a pencil, sheet of paper, and a calculator?"

Spreadsheet Application Software is a set of programs (instructions to a computer) that enables tasks with calculations to be placed on a page in rows and columns. Below is an example of a spreadsheet.

	A	B	C	D	E
1					
2	Items	Price	Qty	Cost	
3					
4	Potato Chips	1.19	2	2.38	
5	Pretzels	0.79	3	2.37	
6	Corn Chips	1.69	1	1.69	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					

INFORMATION SHEET A 1.1 (continued)

Electronic spreadsheets is a term often used to specify that the spreadsheet is created with the aid of a computer. Spreadsheets created on a computer offer greater accuracy, speed, and capability to show instantly the impact of a change in one number.

The sample spreadsheet supplies information about snacks to be purchased--POTATO CHIPS, PRETZELS, AND CORN CHIPS--laid out neatly in rows and columns. The cost (right-most column) of each individual item is obtained by multiplying price by the quantity of items to be purchased. The total cost of this shopping trip is calculated by adding the numbers in the column labeled COST.

Spreadsheets can be used for business tasks which require calculations, especially repetitive calculations. Examples of spreadsheet applications are:

sales projections
income taxes
financial ratios
personal budgets
engineering changes
cost estimates
checkbook reconciliation
gross and net profit calculations

Calculated entries (also called dependent fields and formula entries) are arithmetic statements that tell the computer to calculate a numeric value of the entry dependent upon the value(s) of other entries.

	A	B	C	D	E	F
1						
2	Items	Price	Qty	Cost		
3						
4	Potato Chips	1.19	2	2.38		
5	Pretzels	0.79	3	2.37		
6	Corn Chips	1.69	1	1.69		
7						
8			TOTAL	6.44		
9						
10						
11						
12						
13						
14						
15						
16						

INFORMATION SHEET A 1.1 (continued)

In the previous spreadsheet, the numbers in the column labeled COST are examples of calculated entries. The cost for potato chips is derived by multiplying the price of potato chips by the quantity of potato chips to be purchased. The cost depends upon the price of the item and the quantity to be purchased. Hence, it is a calculated or dependent entry.

Suppose the shopper has $10 to spend for snacks at the grocery store. He can tell by the total that he has already spent $6.44. Determining that he could purchase another bag of corn chips, he would have to recalculate the spreadsheet, changing the number of corn chips purchased.

	A	B	C	D	E	F
1						
2	Items	Price	Qty	Cost		
3						
4	Potato Chips	1.19	2	2.38		
5	Pretzels	0.79	3	2.37		
6	Corn Chips	1.69	2	3.38		
7						
8			TOTAL	8.13		
9						
10						
11						
12						
13						
14						
15						
16						

Examining the new spreadsheet, the shopper could determine whether he could buy more corn chips, pretzels, or potato chips if desired and still stay under $10.

If a spreadsheet is large and complicated, redrawing and recalculating it would be tedious, time consuming, and error prone. But, with a spreadsheet created by a computer, corporate managers and small business owners can play the "what if" game by simply entering the number to be changed and letting the computer instantly and accurately recalculate and redraw the spreadsheet. The recalculation feature of spreadsheets saves management from performing dozens of repetitive calculations when preparing estimates or comparing the financial impact of decisions.

ACTIVITY SHEET

A 1.2

Uses and Advantages of Electronic Spreadsheets

The purpose of this activity is to determine whether or not you have understood the information on the uses and advantages of electronic spreadsheets.

Supply the word(s) needed to complete the statements that follow:

1. Problems involving arithmetic operations may be solved using ______________, ______________, ______________, and ______________.

2. Software packages that are available for solving mathematical problems include ______________, ______________, ______________, and ______________.

3. Electronic spreadsheets might be used for these business applications: ______________, ______________, ______________, ______________, and ______________.

4. Electronic spreadsheets are created with the aid of a ______________.

5. Electronic spreadsheets give greater ______________ and ______________.

6. The impact of a numerical change is shown ______________.

7. ______________ entries are also known as dependent fields containing formula entries.

8. If a spreadsheet is large and complicated, redrawing and recalculating would be ______________, ______________, and ______________.

Activity Sheet Key

A 1.2

Uses and Advantages of Electronic Spreadsheets

The purpose of this activity is to determine whether or not you have understood the information on the uses and advantages of electronic spreadsheets.

Supply the word(s) needed to complete the statements that follow:

[Teachers: answers may vary.]

1. Problems involving arithmetic operations may be solved using mental calculation, pencil & paper, calculators, and computers.
2. Software packages that are available for solving mathematical problems include Lotus 1-2-3, SuperCalc 3, MultiPlan, VisiCalc, PerfectCalc.
3. Electronic spreadsheets might be used for these business applications: sales projections, income taxes, personal budgets, checkbook reconciliation, expense reports, etc.
4. Electronic spreadsheets are created with the aid of a computer.
5. Electronic spreadsheets give greater speed and accuracy.
6. The impact of a numerical change is shown instantly.
7. Calculated entries are also known as dependent fields containing formula entries.
8. If a spreadsheet is large and complicated, redrawing and recalculating would be tedious, time consuming, and error prone.

WRITTEN EXAM

A 1

Identify the Uses and Advantages of Electronic Spreadsheets

The purpose of this exam is to determine whether or not you have understood the information on identifying the uses and advantages of electronic spreadsheets.

Each of the statements is either true or false. If the answer is true, circle the T before the statement. If the answer is false, circle the F before the statement. To master this exam, you must answer 13 out of 15 items correctly, or 87%.

WRITTEN EXAM

A 1

Identify the Uses and Advantages of Electronic Spreadsheets

T F 1. If you did not have a computer and a spreadsheet program but you did have a pencil, paper, and calculator, you could accomplish the same tasks as you could with an electronic spreadsheet.

T F 2. Data is entered in rows and columns.

T F 3. Addition, subtraction, multiplication, and division are operations performed by electronic spreadsheets.

T F 4. Spreadsheets created on a computer give the ability to show instantly the impact of a change in one number.

T F 5. The final value of a formula entry is dependent upon the value(s) of other entries.

T F 6. A person could enter an updated number in a spreadsheet and have the computer automatically recalculate remaining entries.

T F 7. Electronic spreadsheets is a term often used to specify that a spreadsheet is created by hand.

T F 8. For many businesses, the need to create spreadsheets justifies purchasing a microcomputer.

T F 9. A number in one column may be multiplied by a number in another column. The total will be printed in a third column.

T F 10. A budget is an application of an electronic spreadsheet.

T F 11. On an electronic spreadsheet, numbers cannot be added.

T F 12. Forecasting sales is not an application of an electronic spreadsheet.

T F 13. Lotus 1-2-3 and MultiPlan are examples of electronic spreadsheet software.

T F 14. A spreadsheet could be used to determine how many items you could buy with a designated amount of money.

Written Exam Key

A 1

Identify the Uses and Advantages of Electronic Spreadsheets

TRUE 1. If you did not have a computer and a spreadsheet program but you did have a pencil, paper, and calculator, you could accomplish the same tasks as you could with an electronic spreadsheet.

TRUE 2. Data is entered in rows and columns.

TRUE 3. Addition, subtraction, multiplication, and division are operations performed by electronic spreadsheets.

TRUE 4. Spreadsheets created on a computer give the ability to show instantly the impact of a change in one number.

TRUE 5. The final value of a formula entry is dependent upon the value(s) of other entries.

TRUE 6. A person could enter an updated number in a spreadsheet and have the computer automatically recalculate remaining entries.

FALSE 7. Electronic spreadsheets is a term often used to specify that a spreadsheet is created by hand.

TRUE 8. For many businesses, the need to create spreadsheets justifies purchasing a microcomputer.

TRUE 9. A number in one column may be multiplied by a number in another column. The total will be printed in a third column.

TRUE 10. A budget is an application of an electronic spreadsheet.

FALSE 11. On an electronic spreadsheet, numbers cannot be added.

FALSE 12. Forecasting sales is not an application of an electronic spreadsheet.

TRUE 13. Lotus 1-2-3 and MultiPlan are examples of electronic spreadsheet software.

TRUE 14. A spreadsheet could be used to determine how many items you could buy with a designated amount of money.

TRUE 15. Spreadsheet software creates financial models by processing data by column, row, or individual location through the use of simple commands.

INFORMATION PROCESSING

Area: Identify and Use Electronic Spreadsheets

Learner Outcome A 2: Load and Exit DOS and Spreadsheet Software

Purpose: A spreadsheet software package and disk operating system must be loaded into the microcomputer before spreadsheets can be displayed.

Objective: Given the appropriate software and workstation, you will load and exit DOS (Disk Operating System) and spreadsheet software. To master this learner outcome, you must answer 10 out of 10 items correctly or 100% on a performance/product checklist, and answer 13 out of 15 items correctly, or 87% on a written exam.

Estimated Class Time: __2__ hrs.

Learner Outcome A 2

Load and Exit DOS and Spreadsheet Software

LEARNING STEPS

READ: Information Sheet A 2.1, "Load and Exit DOS and Spreadsheet Software."

OBSERVE: Teacher-led demonstration on loading and exiting DOS and spreadsheet software.

READ: Information on loading and exiting DOS and spreadsheet software provided by your instructor.

COMPLETE: Activity Sheet A 2.2, "Load and Exit DOS and Spreadsheet Software."

COMPLETE: Activity Sheet A 2.3, "Load and Exit DOS and Spreadsheet Software."

CONTACT: Instructor for evaluation of your written procedure.

COMPLETE: Performance Checklist A 2, "Load and Exit DOS and Spreadsheet Software." Contact your instructor.

COMPLETE: Written Exam A 2, "Load and Exit DOS and Spreadsheet Software."

CONTACT: Instructor for evaluation of written work.

RESOURCES

Castlewhite, David M., Lawrence J. Chisausky, and Patricia Kronberg, *VisiCalc: Home and Office Companion*, McGraw-Hill, 1982.

Fylstra, Dan, and Joyce Uggla, *VisiCalc User's Guide*, Personal Software, Inc., 1982.

Mandell, Steven L., *Introduction to Computers Using the Apple II*, West Publishing Company, 1985.

Multiplan - Electronic Worksheet, Microsoft Corporation, 1983.

Wolff, Terris B., *Microcomputer Applications: Using Small Systems Software*, Boyd & Fraser Publishing Company, 1984.

Wolverton, Van, *Visicalc Guide*, Software Arts, Inc., 1981.

Learner Outcome

A 2

Load and Exit DOS and Spreadsheet Software

EQUIPMENT/SOFTWARE/SUPPLIES NEEDED

Computer

- Master program disk with spreadsheet program
- Software manual for each student's use in writing procedures for 2.2
- Storage diskette for each student (teacher prepared) with 2 sample spreadsheets already created

Teacher should input following spreadsheets entitled (1) SALES and (2) BUDGET prior to student use. Duplicate disk for other students to use.

```
A1:

         A            B       C       D       E       F       G
1                   SALES            BY              MONTH
2  Profit Center    Jan     Feb     Mar     Apr     Total
3  New York         65500   40100   55600   66000
4  Chicago          87900   83900   77050   94300
5  Denver
6  Los Angeles      33000   19800   32700   38600
7  Totals          186400  143800  165350  198900
8
9
10                  SALES    A2
11
12
```

```
                       BUDGET
             Week 1   Week 2   Week 3   Week 4   Totals
-------------------------------------------------------
Lunch                                              0.00
Snacks                                             0.00
Movies                                             0.00
Tapes                                              0.00
Clothes                                            0.00
Misc                                               0.00
Total Exp      0.00     0.00     0.00     0.00     0.00
-------------------------------------------------------
Income        25.00    30.00   100.00    20.00   175.00
             Income   Less     Expenses =        175.00


             BUDGET   A2
```

Save these spreadsheets. They will be used at various times throughout the instruction.

Note: Teacher may need to revise formula. This was done with LOTUS 1-2-3.

INFORMATION SHEET

A 2.1

Load and Exit DOS and Spreadsheet Software

This information will show you how to begin using a spreadsheet program.

Files are sets of data and programs stored on diskettes. In an office without a microcomputer, a file drawer contains many file folders, each with a logically related collection of information (i.e., the employee file, customer file, billing file). A diskette is like a file drawer that stores many records on its surface. Usually data files are stored on data diskettes, applications programs on program diskettes, and the DOS on a DOS diskette.

It is necessary to LOAD a file into the memory of the computer. Unless a file is in the memory of the computer, no work can be done on it. After the work is completed, it is then necessary to SAVE a file by taking the information from memory and putting it back on the diskette.

The DOS is the Disk Operating System that operates the computer. Nothing can be completed until DOS is in the memory of the computer. If the DOS program is stored on the same diskette as the applications program, it is not necessary to boot the DOS separately.

Different computers have different ways to boot the DOS and applications program. It will be necessary for you to consult your computer software applications manual to find the exact instructions for your equipment.

Disk drives are peripheral devices which read information from a diskette, transfer the information into the memory of the computer, and write information transferred from the computer memory onto a diskette.

An applications program is a program that actually does the work for a particular software application. Application programs are stored on program diskettes and should be "write-protected" (covering the write-protect notch on the diskette with write-protect sticker) because they are very expensive and should not be written on in any way. Check with your instructor to see if it is necessary to write-protect your applications program diskette.

Storage diskettes, also called data diskettes, are used to keep data (information to be processed by the computer).

INFORMATION SHEET A 2.1 (continued)

Software is the term used to refer to DOS and applications programs.

FORMATTING a diskette to be used as a storage diskette is an important step that **must be performed** before any work can be saved onto the diskette. Formatting (also called initializing) erases the diskette and prepares it for storing new information. Because formatting erases the diskette, **NEVER FORMAT THE APPLICATIONS PROGRAM OR DOS DISKETTES**.

DIRECTORY is a program that lists the names of files contained on a diskette. The directory will also tell you which disk drive has a particular file.

COPY is duplicating one or more files.

BACKUP is copying **ALL** of the files on an entire diskette onto another diskette. It is important to have several backup files of programs and data in case data accidentally gets erased or a diskette is damaged.

ACTIVITY SHEET

A 2.2

Load and Exit DOS and Spreadsheet Software

The purpose of this activity is to determine whether or not you have understood the information on loading and exiting DOS and spreadsheet software.

Write your response on a separate sheet.

1. The name of the applications program that you are studying is called ________________________________.

2. Write a detailed procedure for turning on the computer, inserting diskettes, and booting your particular applications program. You may choose from the steps shown below as well as add any steps your application requires. List each step in the required correct sequence. Check your procedure with the instructor before practicing this on computer on Activity Sheet G 2.3.

   Some steps that may be required are:

   a. turning on the computer

   b. answering date and time questions

   c. inserting DOS diskette into drive (specify which drive)

   d. inserting data diskette into drive (specify which drive)

   e. accessing file directory

   f. loading a file from directory

   g. exiting the system

Answers will vary depending on your system. Have your instructor evaluate accordingly.

ACTIVITY SHEET

A 2.3

Load and Exit DOS and Spreadsheet Software

The purpose of this activity is to determine whether or not you have understood the information on loading and exiting DOS and spreadsheet software.

1. Obtain a storage diskette with a sample spreadsheet from instructor. (With a hard disk system, the DOS and applications program may already be loaded on the system; therefore, it would not be necessary to obtain a program diskette.)
2. Boot the DOS program. (If necessary, obtain a DOS diskette.)
3. Load the software applications (spreadsheet) program.
4. Display the file directory on the screen.
5. Load the sample spreadsheet provided and view display.
6. Exit the system. (This will cause the original spreadsheet to remain as it was despite any changes a student may happen to make accidentally.)

Answers will vary depending on your system. Have your instructor evaluate accordingly.

AREA: Identify and Use Electronic Spreadsheets

LEARNER OUTCOME: Load and Exit DOS and Spreadsheet Software

LEARNER OUTCOME: A 2

PERFORMANCE/PRODUCT CHECKLIST

STUDENT ______________________________ PERFORMANCE ATTEMPT 1 2 3 4

EVALUATOR ______________________________ DATE ______________________

EVALUATION SITE ____________________

TERMINAL PERFORMANCE OBJECTIVE:

Given appropriate software and workstation, load and exit DOS (Disk Operating System) and spreadsheet software.

DIRECTIONS TO THE STUDENT:

Before attempting this guide for mastery, carefully review this checklist. You will be evaluated on the basis of this checklist. When you feel you are ready for evaluation, contact your instructor. You must complete your performance within 10 minutes and must score 10 out of 10 points or 100% for mastery. Critical items are marked with an asterisk (*). These items must be completed satisfactorily.

DIRECTIONS TO THE EVALUATOR:

The student will contact you when ready for evaluation. The student must complete this performance within 10 minutes and must score 10 out of 10 points or 100% for mastery.

PERFORMANCE/PRODUCT CHECKLIST

A 2

Load and Exit DOS and Spreadsheet Software

CRITICAL ITEMS	ITEMS TO BE OBSERVED	RATING YES/NO
*1.	The student has established the proper environment (no food or drinks, nothing placed on ventilation slots, no smoking) and has obtained appropriate diskettes?	
*2.	The student has turned on the computer system properly?	
*3.	The diskettes are held correctly?	
*4.	The diskettes are inserted properly?	
*5.	The diskettes are inserted in the proper sequence?	
*6.	The applications program is loaded correctly?	
*7.	The file directory is brought to the screen properly?	
*8.	The sample spreadsheet is loaded and displayed correctly?	
*9.	The diskettes are removed properly and placed in protective sleeves?	
*10.	The program is exited properly?	

POINTS NEEDED 10

TOTAL POINTS 10

SCORE ______

WRITTEN EXAM

A 2

Load and Exit DOS and Spreadsheet Software

The purpose of this exam is to determine whether or not you have understood the information on loading and exiting DOS and spreadsheet software.

Each of the statements is either true or false. If the answer is true, circle the T before the statement. If the answer is false, circle the F before the statement. To master this exam, you must answer 13 out of 15 items correctly, or 87%.

WRITTEN EXAM

A 2

Load and Exit DOS and Spreadsheet Software

T F 1. Files are sets of data and programs stored on a diskette.

T F 2. DOS is the applications program.

T F 3. Storage diskettes are NOT data diskettes.

T F 4. Software is the term used to refer to DOS and applications programs.

T F 5. Information is saved in the memory of the computer and not on a diskette.

T F 6. Backup is copying ONE file from one diskette to another diskette.

T F 7. Copy is duplicating one or more files.

T F 8. All computers boot the DOS in the same way.

T F 9. To SAVE a file is taking the information from one diskette and putting the information on another diskette.

T F 10. Formatting does not erase data stored previously on a diskette.

T F 11. Disk drives read information from a diskette.

T F 12. A diskette can only store one record on its surface.

T F 13. The operator usually writes his/her data on the applications program diskette.

T F 14. A directory is a listing of names of files.

T F 15. It is not necessary to load a file from a diskette into the memory of the computer.

Written Exam Key

A 2

Load and Exit DOS and Spreadsheet Software

TRUE	1.	Files are sets of data and programs stored on a diskette.
FALSE	2.	DOS is the applications program.
FALSE	3.	Storage diskettes are NOT data diskettes.
TRUE	4.	Software is the term used to refer to DOS and applications programs.
FALSE	5.	Information is saved in the memory of the computer and not on a diskette.
FALSE	6.	Backup is copying ONE file from one diskette to another diskette.
TRUE	7.	Copy is duplicating one or more files.
FALSE	8.	All computers boot the DOS in the same way.
FALSE	9.	To SAVE a file is taking the information from one diskette and putting the information on another diskette.
FALSE	10.	Formatting does not erase data stored previously on the diskette.
TRUE	11.	Disk drives read information from a diskette.
FALSE	12.	A diskette can only store one record on its surface.
FALSE	13.	The operator usually writes his/her data on the applications program diskette.
TRUE	14.	A directory is a listing of names of files.
FALSE	15.	It is not necessary to load a file from a diskette into the memory of the computer.

INFORMATION PROCESSING

Area: Identify and Use Electronic Spreadsheets

Learner Outcome A 3: Identify the Basic Components of Spreadsheets and Operate Special Function Keys

Purpose: To work with spreadsheets, it is necessary to be familiar with basic components and the operation of special function keys.

Objective: Given the appropriate software, software manual, and workstation, identify basic components of spreadsheets and operate special function keys. To master this learner outcome, you must score a total of 7 points by performing all 7 items accurately, or 100%, on the performance/product checklist and answer 9 out of 10 items correctly on a written exam.

Estimated Class Time: 5 hrs.

Learner Outcome A 3

Identify the Basic Components of Spreadsheets and Operate Special Function Keys

LEARNING STEPS

READ: Information Sheet A 3.1, "The Basic Components of Spreadsheets" and Software Manual.

OBSERVE: Teacher-led demonstration on cursor movement.

REVIEW: Information Sheet A 3.1, "The Basic Components of Spreadsheets" and Software Manual.

READ: Information on basic components of electronic spreadsheets for your software package as provided by your instructor.

OBSERVE: Teacher-led demonstration on cell information; i.e., labels, numbers, formulas.

COMPLETE: Activity Sheet A 3.2, "The Basic Components of Spreadsheets." See your instructor.

READ: Information Sheet A 3.3, "Operating Special Function Keys."

OBSERVE: Teacher-led demonstration on commands and special function keys.

READ: Information on electronic spreadsheets to identify the specific commands for your software as provided by your instructor.

COMPLETE: Activity Sheet A 3.4, "The Basic Components of Spreadsheets and the Operating of Special Function Keys." See your instructor.

COMPLETE: Activity Sheet A 3.5, "Operating Special Function Keys." See your instructor.

COMPLETE: Performance/Product Checklist A 3, "Identify the Basic Components of Spreadsheets and Operate Special Function Keys." Contact your instructor.

COMPLETE: Written Exam A 3, "Identify the Basic Components of Spreadsheets and Operate Special Function Keys."

RESOURCES

A 3

Castlewhite, David M., Lawrence J. Chisausky, and Patricia Kronberg, *VisiCalc: Home and Office Companion*, McGraw-Hill, 1982.

Fylstra, Dan, and Joyce Uggla. *VisiCalc User's Guide*, Personal Software, Inc., 1982.

Mandell, Steven L., *Introduction to Computers Using the Apple II*, West Publishing Company, 1985.

Multiplan - Electronic Worksheet, Microsoft Corporation, 1983.

Wolff, Terris B., *Microcomputer Applications: Using Small Systems Software*, Boyd & Fraser Publishing Company, 1984.

Wolverton, Van, *VisiCalc Guide*, Software Arts, Inc., 1981.

EQUIPMENT/SOFTWARE/SUPPLIES NEEDED

Software program for DOS and electronic spreadsheet package

Computer

Software program manual for students to consult

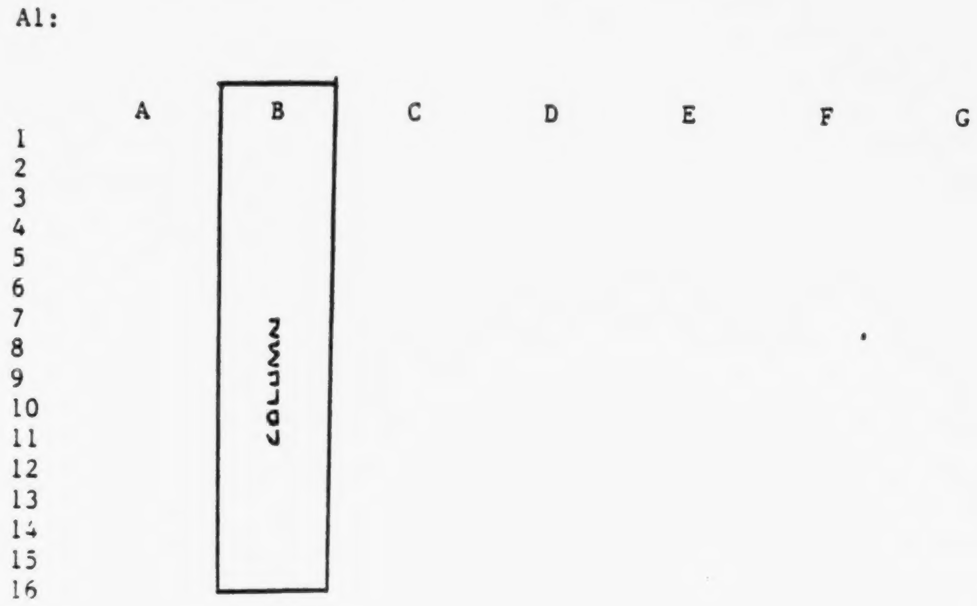
Data diskette with sample spreadsheet used previously

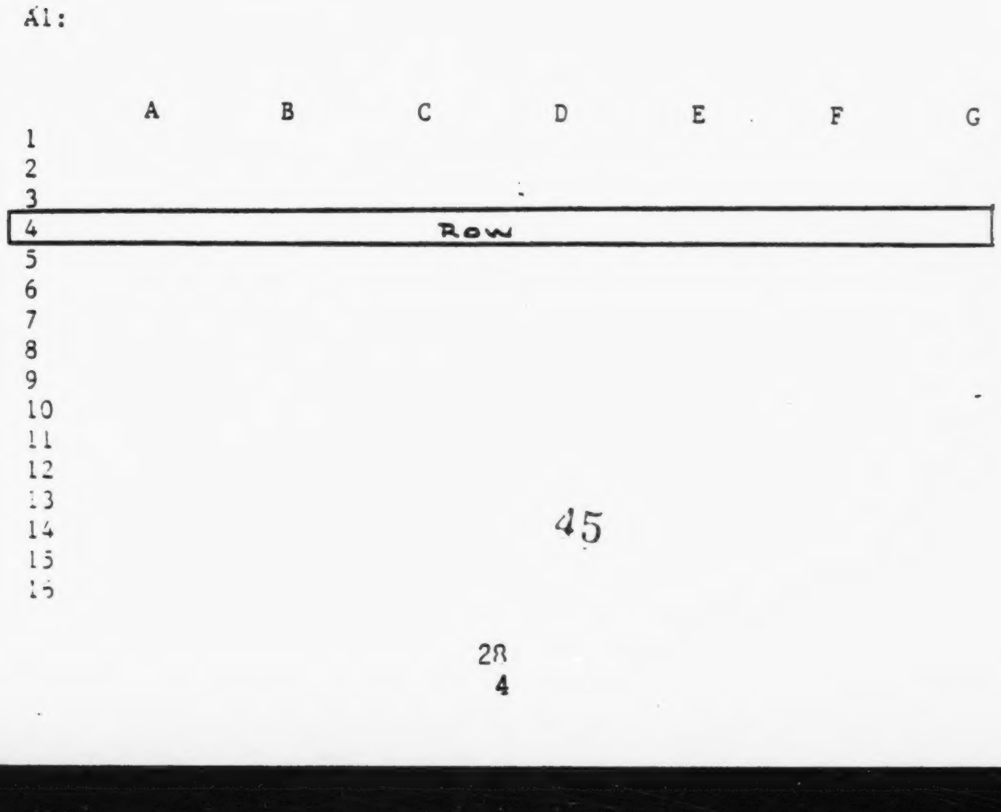
INFORMATION SHEET

A 3.1

The Basic Components of Spreadsheets

Spreadsheets are arranged in columns and rows. The rows and columns are named. Different spreadsheet applications use different naming conventions. For this example, rows are numeric and columns are alphabetic. Some spreadsheets use all numeric labels for columns and rows.


A1:
A
B
C
D
E
F
G
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
COLUMN


A1:
A
B
C
D
E
F
G
1
2
3
4
Row
5
6
7
8
9
10
11
12
13
14
15
16

INFORMATION SHEET A 3.1 (continued)

Cells are the individual places where columns and rows intersect. Cells are named by two coordinates, referring to the name of the column and to the name of the row that intersect at that location.

	A	B	C	D	E
1					
2	Items	Price	Qty	Cost	
3					
4	Potato Chips	1.19	2	2.38	
5	Pretzels	0.79	3	2.37	
6	Corn Chips	1.69	1	1.69	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					

In the above example, the entry "0.79" is in cell B 5. The "B" identifies the column (vertical) in which the entry appears. The "5" identifies the row (horizontal) in which the entry appears. In this example, the column coordinate is always listed first (Lotus 1-2-3, VisiCalc, SuperCalc); some packages reverse this and list the row coordinate first (Multiplan).

The cursor is a pointer that will highlight the cell in which you are currently working. The cursor can be readily thought of as that point where the pencil meets the paper. It is that point where the next character typed will be placed.

On most spreadsheet packages, three (3) kinds of entries can be made into a cell--Labels, Numbers, and Formulas.

Labels (also called headings and titles) are entries made in cells that give meaningful names to rows and columns. In our example, ITEM, PRICE, QUANTITY, COST, POTATO CHIPS, PRETZELS, AND CORN CHIPS are all labels. Labels are usually alphabetic.

Numbers are entries that may or may not vary. Different numbers are entered by the user when recalculation is performed. In our example, 1.19, 0.79, 1.69, 2, 3, 1, 2.38, 2.37, and 1.69 are number entries.

Formulas are arithmetic statements telling the computer how to derive an entry. In our example, the Cost (Column D) was obtained by the computer by multiplying the Price (Column B) by the Quantity (Column C).

ACTIVITY SHEET

A 3.2

The Basic Components of Spreadsheets

The purpose of this activity is to determine whether or not you have understood the basic components of spreadsheets.

Complete the exercise below by writing the correct letter or information on a separate sheet.

1. Spreadsheet columns are referred to by

   a. alphabet
   b. numbers
   c. other (specify) ________________

2. Spreadsheet rows are referred to by

   a. alphabet
   b. numbers
   c. other (specify) ________________

3. The locations on a spreadsheet where columns and rows intersect, and into which entries can be made are called

   a. cursors b. calculated fields
   c. cells d. formulas

4. All of the following would be a good application for spreadsheet except

   a. estimating profits for the coming year
   b. listing monthly sales for products
   c. typing a three-paragraph letter
   d. printing a report on wages earned by employees

5. Label the rows and columns of the following spreadsheet:

	Department	1983	1984	1985
	Labor	55,000	62,000	73,000
	Materials	16,000	17,500	21,000
	Overhead	8,000	12,000	10,000
	General	2,300	3,000	3,500
	Total	81,300	94,500	107,500

ACTIVITY SHEET A 3.2 (continued)

6. Given the following cell entries, write the Coordinates for each in the appropriate blank.

a. 17,500 ________ b. 3,500 ________
c. overhead ________ d. 81,300 ________

7. Which of the following are label entries in the preceding spreadsheet?

a. 81,300 b. labor
c. 107,500 d. none of the above
e. all of the above

8. Which of the following are calculated entries in the preceding spreadsheet?

a. 94,500 b. 10,000
c. labor d. 8,000
e. all of the above

Note: Some of the answers above may vary depending on your system. Evaluate student accordingly.

Activity Sheet Key

A 3.2

The Basic Components of Spreadsheets

The purpose of this activity is to determine whether or not you have understood the basic components of spreadsheets.

Complete the exercise below by writing the correct letter or information on a separate sheet.

1. Spreadsheet columns are referred to by

   a. alphabet

2. Spreadsheet rows are referred to by

   b. numbers

3. The locations on a spreadsheet where columns and rows intersect, and into which entries can be made are called

   c. cells

4. All of the following would be a good application for spreadsheet except

   c. typing a three-paragraph letter

5. Label the rows and columns of the following spreadsheet:

	A	B	C	D	E
1					
2		Department	1983	1984	1985
3		Labor	55,000	62,000	73,000
4		Materials	16,000	17,500	21,000
5		Overhead	8,000	12,000	10,000
6		General	2,300	3,000	3,500
7		Total	81,300	94,500	107,500

Activity Sheet Key A 3.2 (continued)

6. Given the following cell entries, write the Coordinates for each in the appropriate blank.

   a. 17,500 D4   b. 3,500 E6
   c. overhead B5   d. 81,300 C7

7. Which of the following are label entries in the preceding spreadsheet?

   b. labor

8. Which of the following are calculated entries in the preceding spreadsheet?

   a. 94,500

NOTE: Some of the answers above may vary depending on your system. Evalaute student accordingly.

INFORMATION SHEET

A 3.3

Operating Special Function Keys

COMMANDS

A command is an instruction to the applications program. It is not data; it will not be entered onto the spreadsheet or appear on the spreadsheet. But, a command can be used to have the applications program enter or change entries on a spreadsheet or perform other functions using the spreadsheet. You will use commands to get the applications program to work for you.

A command menu lists the commands that can be executed. Examples of commands that may be available depending on your software package are listed below:

1.	blank	erases highlighted cell
2.	clear/new	clears the spreadsheet from the screen
3.	delete	removes a row and/or column
4.	edit	allows editing (correcting) of data in cells
5.	enter	allows inputting with either alphabetic or numeric data
6.	format	sets format for a cell so that all data may appear to left or right, or with a specific decimal setting
7.	formula	allows inputting of mathematical formulas
8.	global	makes changes that affect the entire spreadsheet
9.	help	provides instructions for moving cursor, etc., while spreadsheet is being created
10.	insert	inserts a row or column
11.	load	allows operator to access a stored file from a diskette
12.	move	moves an entire row or column
13.	print	prints the spreadsheet

INFORMATION SHEET A 3.3 (continued)

14.	store, save, storage, file or transfer	saves the spreadsheet to disk
15.	titles	fixes titles as a reference point

Aborting a command is the action of preventing a command from executing after it has been requested. Sometimes a command is selected mistakenly, or the user realizes that he/she did not wish to use that command. Your software manuals should be consulted to determine what key(s) should be used to abort a command.

FUNCTION KEYS

Function keys are created by the applications program to save keystrokes. Specific keys represent a command. By pressing the key, the command will be executed. Often a combination of keys must be pressed to initiate a function.

Frequently, there is help available. By depressing a key, a description of commands and other special functions appear on the screen.

CURSOR MOVEMENT

It is important to learn to navigate about the spreadsheet quickly and efficiently. The cursor or cell pointer is moved by using either arrow keys or a go to command. Consult your manual for specifics on how to move the cell pointer.

ACTIVITY SHEET

A 3.4

The Basic Components of Spreadsheets and the Operating of Special Function Keys

The purpose of this activity is to determine whether or not you have understood the basic components of spreadsheets and the operating of special function keys.

Practice these steps:

Check

1. turning on power _____
2. inserting proper disk(s) _____
3. booting system _____
4. loading spreadsheet _____
5. moving pointer to cell B 5 (R5C2), using cursor _____
6. moving pointer to cell C 9 (R9C3), using cursor _____
7. exiting spreadsheet program _____
8. removing and storing disks _____
9. turning power off _____

Procedures will vary depending on your system. Have your instructor evaluate accordingly.

ACTIVITY SHEET

A 3.5

Operating Special Function Keys

The purpose of this activity is to determine whether or not you have understood how to operate special function keys.

Write the answer(s) on the blanks provided. Consult your software manual to locate answers.

1. Commands are selected by depressing the __________ key(s).

2. List the commands available on your system and a brief description of the use of each one.

   a. ____

   b. ____

   c. ____

   d. ____

   e. ____

   f. ____

   g. ____

   h. ____

   i. ____

   j. ____

   k. ____

   l. ____

3. List the function keys available.

   a. ____

   b. ____

   c. ____

   d. ____

   e. ____

ACTIVITY SHEET A 3.5 (continued)

f. ____________________

g. ____________________

h. ____________________

i. ____________________

j. ____________________

k. ____________________

4. a. Can a selected command be aborted (stopped before completing)? ____________ (yes/no)

   b. If yes, how is it aborted?

   ____

5. a. Is help (description of commands) available on the monitor?

   ____________ (yes/no)

   b. If yes, how do you access (receive help on screen) help?

   ____

6. Load sample spreadsheet __SALES__ and practice any or all of these steps:

   a. If available on your system, access help.

   b. If available on your system, execute command to clear a single cell.

   c. Execute command to clear the screen and abort before operation is completed.

   d. If available on your system, execute command to clear the entire screen.

7. Exit system.

Answers will vary depending on your system. Have your instructor evaluate accordingly.

AREA: Identify and Use Electronic Spreadsheets

LEARNER OUTCOME: Identify the Basic Components of Spreadsheets and Operate Special Function Keys

LEARNER OUTCOME: A 3

PERFORMANCE/PRODUCT CHECKLIST

STUDENT ______________________________ PERFORMANCE ATTEMPT 1 2 3 4

EVALUATOR ____________________________ DATE ______________________

EVALUATION SITE ____________________

TERMINAL PERFORMANCE OBJECTIVE:

Given the appropriate software, software manual, and workstation, identify basic components of spreadsheets and operate special function keys. To master this component, you must score 6 out of 6 points on a performance checklist, or 100%, and score 9 out of 10 points or 90% on a written exam.

DIRECTIONS TO THE STUDENT:

Before attempting this component for mastery, carefully review this checklist. You will be evaluated on the basis of this checklist. When you feel you are ready for evaluation, contact your instructor. You must complete your performance within 10 minutes and must score at least 7 out of 7 points or 100% for mastery. Critical items are marked with an asterisk (*). These items must be completed satisfactorily.

DIRECTIONS TO THE EVALUATOR:

The student will contact you when ready for evaluation. The student must complete the performance within 10 minutes and must score 7 out of 7 points or 100% for mastery. Critical items are marked with an asterisk (*). These items must be completed satisfactorily.

PERFORMANCE/PRODUCT CHECKLIST

A 3

Identify the Basic Components of Spreadsheets and Operate Special Function Keys

Ask your instructor to observe as you perform the following tasks:

- Load/boot the applications software and sample spreadsheet.
- Access the command menu.
- Select the command to clear the spreadsheet.
- If help is available, obtain help.
- Select and abort the command to clear the monitor.
- Move cell pointer to various coordinates.
- Exit program, remove and store disks, and turn off power.

CRITICAL ITEMS	ITEMS TO BE OBSERVED	RATING YES/NO
*1.	The student has booted the applications program properly and loaded sample spreadsheet SALES.	
*2.	The student has accessed the command menu.	
*3.	The student has selected the command to clear the screen.	
*4.	The student has obtained help if available.	
*5.	The student has aborted a selected command.	
*6.	The student has moved cell pointer to proper coordinates.	
*7.	The student has exited program, removed and stored disk(s), and turned off power.	

TOTAL POINTS 7

POINTS NECESSARY 7

SCORE ______

WRITTEN EXAM

A 3

Identify the Basic Components of Spreadsheets and Operate Special Function Keys

The purpose of this exam is to determine whether or not you have understood the information on identifying the basic components of spreadsheets and operating special function keys.

Select the answer that best completes the statement; write this letter on a separate sheet. To master this exam, you must answer 9 out of 10 items accurately or 90%.

WRITTEN EXAM

A 3

Identify the Basic Components of Spreadsheets and Operate Special Function Keys

1. On an electronic spreadsheet, ROWS are

   a. vertical
   b. horizontal
   c. a combination of horizontal and vertical
   d. none of the above
   e. all of the above

2. On an electronic spreadsheet, COLUMNS are

   a. vertical
   b. horizontal
   c. a combination of horizontal and vertical
   d. none of the above
   e. all of the above

3. The locations on a spreadsheet where columns and rows intersect are called

   a. cursors
   b. calculated fields
   c. cells
   d. formulas

4. On an electronic spreadsheet, columns are named with

   a. alphabetic characters
   b. numeric characters
   c. a combination of alphabetic and numeric characters
   d. none of the above
   e. all of the above

5. On an electronic spreadsheet, rows are named with

   a. alphabetic characters
   b. numeric characters
   c. a combination of alphabetic and numeric characters
   d. none of the above
   e. all of the above

6. Referring to the sample spreadsheet at the right, the amount 1.89 is located at the coordinate of

   a. row 2 column 4
   b. row 4 column 2
   c. row 3 column 1
   d. none of the above
   e. all of the above

Items	Price	Qty	Cost
Chips	1.29	4	5.16
Pretzels	.89	3	2.67
Corn Chips	1.89	2	3.78

WRITTEN EXAM A 3 (continued)

7. Which of the following are label entries?

   a. 75,000
   b. labor
   c. 2,000
   d. none of the above
   e. all of the above

8. The CURSOR is

   a. an individual cell
   b. a formula
   c. a pointer
   d. none of the above
   e. all of the above

9. The INSERT command on an electronic spreadsheet allows the user to

   a. insert a missing character
   b. insert a missing label
   c. insert an entire column
   d. none of the above
   e. all of the above

10. The PRINT command on an electronic spreadsheet allows the user to

   a. display the spreadsheet on the monitor
   b. print the spreadsheet on a printer
   c. both of the above
   d. none of the above

Written Exam Key

A 3

Identify the Basic Components of Spreadsheets and Operate Special Function Keys

1. On an electronic spreadsheet, ROWS are

   b. horizontal

2. On an electronic spreadsheet, COLUMNS are

   a. vertical

3. The locations on a spreadsheet where columns and rows intersect are called

   c. cells

4. On an electronic spreadsheet, columns are named with

   a. alphabetic characters*

5. On an electronic spreadsheet, rows are named with

   b. numeric characters*

6. Referring to the sample spreadsheet at the right, the amount 1.89 is located at the coordinate of

   a. row 2 column 4
   b. row 4 column 2
   c. row 3 column 1
   d. none of the above
   e. all of the above

Items	Price	Qty	Cost
Chips	1.29	4	5.16
Pretzels	.89	3	2.67
Corn Chips	1.89	2	3.78

7. Which of the following are label entries?

   b. labor

8. The CURSOR is

   c. a pointer

9. The INSERT command on an electronic spreadsheet allows the user

   c. to insert an entire column*

Written Exam Key A 3 (continued)

10. The PRINT command on an electronic spreadsheet allows the user

    b. to print the spreadsheet on a printer

*Based on information in this section, software may or may not have this command.

INFORMATION PROCESSING

Area: Identify and Use Electronic Spreadsheets

Learner Outcome A 4: Print a Spreadsheet

Purpose: Hard copies of spreadsheets are convenient, easily read, and provide security if the system should accidentally go down.

Objective: Given the appropriate software, software manual, workstation, disk containing selected spreadsheet, compatible printer, and printer manual, you will print a spreadsheet. To master this learner outcome, you must score 100% on a product checklist.

Estimated Class Time: __1__ hr.

Learner Outcome A 4

Print a Spreadsheet

LEARNING STEPS

READ:	Information Sheet A 4.1, "Print a Spreadsheet."
OBSERVE:	Teacher-led demonstration on printing a spreadsheet using SALES spreadsheet.
READ:	Information on printing spreadsheets for your software package as provided by instructor.
COMPLETE:	Activity Sheet A 4.2, "Print a Spreadsheet."
COMPLETE:	Activity Sheet A 4.3, "Print a Spreadsheet."
COMPLETE:	Performance Checklist A 4, "Print a Spreadsheet." Contact your instructor.

EQUIPMENT/SOFTWARE/SUPPLIES NEEDED

Computer

Printer and paper

Master diskette containing spreadsheet program

Data diskette with 2 sample spreadsheets

INFORMATION SHEET

A 4.1

Print a Spreadsheet

It is often necessary to print a hard copy (printed copy) of a spreadsheet. A hard copy can be mailed or carried to another office more easily than a microcomputer. A hard copy cannot be deleted accidentally if the machine is shut off or the machine loses its power. If the spreadsheet is large, only portions of it can be seen on the monitor. When a hard copy is printed, the whole spreadsheet can be viewed at once.

Before a spreadsheet can be printed, it is necessary to name a *range* of cells. A range is a group of cells, either a row or a column. You will now need to determine your horizontal and vertical range in order to define a *block* (rectangular portion) to be printed.

Before beginning to print your spreadsheet, be certain that the printer is turned on, that it is on-line, and that the paper is aligned correctly.

If your spreadsheet is wider than the maximum width of the printer, it will be necessary to print the spreadsheet in blocks that will fit on the printer and tape the separate sections together. Other options are printing condensed or sideways.

Sometimes certain software programs will allow a printing of the "screen" (exactly what is on the screen at the time). This way you can get a hard copy of what is on the screen before printing the final copy of the spreadsheet.

Consult your software manual for exact details for printing your spreadsheet, depending upon the software you are using.

See examples A & B on the following pages.

INFORMATION SHEET A 4.1 (continued)

PRINT SPREADSHEET

```
                              BUDGET
       A        B        C        D        E        F        G        H

 1                   3rd QTR.           3rd QTR.
 2                    1986               1985
 3INCOME
 4
 5WAGES               6046.63            5932.50
 6OTHER                259.09             185.36
 7TOTAL INCOME        6305.72            6117.86
 8
 9EXPENSES
10
11RENT                1530.69            1403.36
12UTILITIES            562.39             395.43
13FOOD                1242.91            1137.29
14CLOTHING             375.43             489.57
15INSURANCE            338.49             396.36
16LOANS                691.08             660.45
17MEDICAL              168.84             253.78
18OTHER                366.66             312.89
19TOTAL EXPENSES      5276.49            5049.13
20
21SAVINGS             1029.23            1068.73
```

Example A

INFORMATION SHEET A 4.1 (continued)

PRIN SPREADSHEET

```
                                                  BOWLING
       A          B          C          D          E          F          G          H
   1                     NORTHWEST BOWLING TEAM
   2
   3NAME                 GAME 1                GAME 2                GAME 3    AVERAGE
   4
   5A. John                 110                   125                   134        123
   6P. Jenny                112                   120                   122        118
   7J. Susan                 98                   112                   120        110
   8A. Bill                 170                   168                   157        165
   9
  10TEAM AVG-WK 4         122.5                131.25                133.25
  11
  12A. John                 140                   124                   132        132
  13P. Jenny                115                   128                   129        124
  14J. Susan                100                   103                   112        105
  15A. Bill                 170                   152                   164        162
  16
  17TEAM AVG-WK 5        131.25                126.75                134.25
  18
  19
  20
  21
```

Example B

ACTIVITY SHEET

A 4.2

Print a Spreadsheet

The purpose of this activity is to determine whether or not you understand how to print a spreadsheet.

Fill in the blanks.

1. A printed copy from a computer is often called a ____________________.
2. A _______________ is a group of cells, either a row or a column.
3. A ______________ is a rectangular portion to be printed.
4. If a spreadsheet is too wide for the printer, it will be necessary to print the spreadsheet in ____________________ or ________________________.

Write a brief description, using your software manual, of how a spreadsheet is printed.

Activity Sheet Key

A 4.2

Print a Spreadsheet

The purpose of this activity is to determine whether or not you understand how to print a spreadsheet.

Fill in the blanks.

1. A printed copy from a computer is often called a __hard copy__.
2. A __range__ is a group of cells, either a row or a column.
3. A __block__ is a rectangular portion to be printed.
4. If a spreadsheet is too wide for the printer, it will be necessary to print the spreadsheet in __sections__ or __in condensed form__.

Write a brief description, using your software manual, of how a spreadsheet is printed.

Answers will vary depending on your system.

ACTIVITY SHEET

A 4.3

Print a Spreadsheet

The purpose of this activity is to determine whether or not you understand how to print a spreadsheet.

Complete steps one through three without assistance other than the software applications manual located in the classroom.

1. Load spreadsheet entitled BUDGET.
2. Print the whole spreadsheet.
3. Print only the first and second columns of the spreadsheet.

Have your instructor evaluate your printout. Techniques for doing the above will vary depending on your system.

AREA: Identify and Use Electronic Spreadsheets

LEARNER OUTCOME: Print a Spreadsheet

LEARNER OUTCOME: A 4

PERFORMANCE/PRODUCT CHECKLIST

STUDENT ______________________________ PERFORMANCE ATTEMPT 1 2 3 4

EVALUATOR ____________________________ DATE ______________________

EVALUATION SITE ____________________

TERMINAL PERFORMANCE OBJECTIVE:

Given appropriate software manual, workstation, disk containing selected spreadsheet, compatible printer, and printer manual print a spreadsheet. To master this assignment, you must score 5 out of 5 points or 100% on a performance/ product checklist.

DIRECTIONS TO THE STUDENT:

Before attempting this assignment for mastery, carefully review this checklist. You will be evaluated on the basis of this checklist. When you feel you are ready for evaluation, contact your instructor. You must complete your performance within 10 minutes and must score 5 out of 5 points or 100% for mastery.

DIRECTIONS TO THE EVALUATOR:

The student will contact you when ready for evaluation. The student must complete the performace within 10 minutes and must score 5 out of 5 points or 100% for mastery.

PERFORMANCE/PRODUCT CHECKLIST

A 4

Print a Spreadsheet

Ask your instructor to observe as you perform the following tasks:

- -- Load/boot the applications software chosen by teacher (either SALES or BUDGET)
- -- Recall a selected spreadsheet.
- -- Print entire spreadsheet.
- -- Print only columns 2 & 3.
- -- Power down workstation.
- -- Store materials.

CRITICAL ITEMS	ITEMS TO BE CHECKED OR OBSERVED	RATING YES/NO
*1.	Was the whole spreadsheet printed?	___ ___
*2.	Were the second and third columns printed as a separate exercise?	___ ___
*3.	Did the student work alone?	___ ___
*4.	Was the workstation powered down properly?	___ ___
*5.	Were all disks, software manuals, paper, and other supplies returned to the proper places?	___ ___

TOTAL POINTS 5

POINTS NECESSARY 5

SCORE ______

INFORMATION PROCESSING

Area: Identify and Use Electronic Spreadsheets

Learner Outcome A 5: Enter Data on an Existing Spreadsheet and Store the Spreadsheet

Purpose: To work with electronic spreadsheets in an office, one must enter data in certain cells

Objective: Given the appropriate software manual, existing spreadsheet on a data diskette, and workstation, enter data on an existing spreadsheet. To master this learner outcome, you must score 5 out of 5 points, or 100% on a performance checklist.

Estimated Class Time: 2 hrs.

Learner Outcome A 5

Enter Data on an Existing Spreadsheet and Store the Spreadsheet

LEARNING STEPS

READ: Information Sheet A 5.1, "Enter Data on an Existing Spreadsheet."

OBSERVE: Instructor-led demonstration of entering data, changing data, and moving quickly from one cell to another distant cell, such as GO TO.

READ: Software manual on specific commands for entering data, changing data, and moving quickly from one cell to another, such as GO TO.

COMPLETE: Activity Sheet A 5.2, "Software-Specific Commands." Contact your instructor on completion.

COMPLETE: Activity Sheet A 5.3, "Locate Certain Cells on a Spreadsheet." Contact your instructor on completion.

COMPLETE: Activity Sheet A 5.4, "Enter Data on a Spreadsheet."

PRINT: The above spreadsheet.

COMPLETE: Performance/Product Checklist A 5, "Enter Data on an Existing Spreadsheet."

CONTACT: Instructor for the name of the spreadsheet to be used for the final evaluation and the data to be entered. You will be evaluated for mastery with Checklist A 5.

RESOURCES

A 5

Castlewhite, David M., Lawrence J. Chisausky, and Particia Kronberg, Visicalc: Home and Office Companion, McGraw-Hill, 1982.

Desautels, Edouard J., Visicalc, William C. Brown Company Publishers, 1982.

Fylstra, Dan, and Joyce Uggla, Visicalc User's Guide, Personal Software, Inc., 1982.

Gruschcow, Jack, The Visicalc Applications Book, Reston Publishing Company, 1983.

Lotus 1-2-3, Lotus Development Corporation.

Mandell, Steven L., Introduction to Computers Using the Apple II, West Publishing Company, 1985.

MultiPlan - Electronic Worksheet, Microsoft Corporation, 1983.

MultiPlan Training Guide, Wang Laboratories, Inc., 1983.

Petersohn, Henry H., Developing Computer Solutions for Your Business Problems, Prentice-Hall, Inc., 1982.

Wolff, Terris B., Microcomputer Applications: Using Small Systems Software, Boyd & Fraser Publishing Company, 1984.

Wolverton, Van, VisiCalc Guide, Software Arts, Inc., 1981.

EQUIPMENT/SOFTWARE/SUPPLIES NEEDED

Software program for spreadsheets

Computer

Data diskette with existing spreadsheets

Software manual instructions for
- entering data
- changing data
- moving quickly from one cell to another distant cell
- saving data to storage disk

Additional data disk to create backup copy of student's disk

INFORMATION SHEET

A 5.1

Enter Data on an Existing Spreadsheet

Sometimes it is necessary to change information on an existing spreadsheet. When information is changed, you will notice that totals are changed also. This is due to formulas that compute column totals. You will learn how to write these formulas in a task sheet later. Use your cursor keys to move from cell to cell on the spreadsheet. Use the return or enter key to lock in the new data. After you have entered new data, it is always important that you save the data on your diskette and make a backup copy. You never know when a disk might become damaged, and you have lost all of your information.

The following procedure should be used to update an existing spreadsheet:

1. Load the applications program (might be necessary to boot the DOS in order to boot the applications program).
2. Load or retrieve the spreadsheet from a storage diskette.
3. Update the spreadsheet with the new information (use cursor and return keys).
4. Save the updated spreadsheet on the storage diskette.
5. Save the updated spreadsheet on a second diskette (backup copy).
6. If the diskettes are not labeled, label them with the pertinent information.

Consult your software manual for specific information that applies to your applications program.

ACTIVITY SHEET

A 5.2

Software-Specific Commands

The purpose of this activity is to determine whether or not you have understood specific command procedures.

(Refer to your software manual for these answers.)

Write the command/procedure for the following functions:

1. moving cursor quickly to a distant cell ____________
2. placing data in a cell after keying it on a screen ____________
3. retrieving an existing spreadsheet ____________
4. saving the updated spreadsheet ____________
5. changing a single character in a cell ____________
6. changing entire entry in a cell ____________

Answers will vary depending on the system and software. Have your instructor check your work.

ACTIVITY SHEET

A 5.3

Locate Certain Cells on a Spreadsheet

The purpose of this activity is to determine whether or not you have understood how to locate certain cells on a spreadsheet.

After loading spreadsheet program and data diskette with existing spreadsheet, retrieve the spreadsheet named SALES.

Write your answers on the lines provided.

```
                 SALES          BY                  MONTH
Profit Center      Jan     Feb     Mar     Apr   Total
New York         65500   40100   55600   66000
Chicago          87900   83900   77050   94300
Denver
Los Angeles      33000   19800   32700   38600
Totals          186400  143800  165350  198900
```

1. What is the January sales figure for Chicago? ________________
2. In which cell was the above figure found? ________________
3. What is the March figure for Los Angeles? ________________
4. In which cell was the above figure found? ________________
5. What is the February figure for Denver? ________________
6. In which cell was the above figure found? ________________
7. What is the total sales figure for April? ________________
8. In which cell was the above figure found? ________________
9. **Place your cursor (pointer) on cell B11.
   What data shows on the screen for that cell? ________________
   (This is the formula which affects the total figure.)

ACTIVITY SHEET A 5.3 (continued)

SELF-CHECK

Circle Yes or No for your response:

Did you find 87,900 in cell B7 for Chicago?** Yes No

Did you find 32,700 in cell D9 for Los Angeles?** Yes No

Did you find the Denver sales figures missing? Yes No
If your answer is Yes, "good!"
(You will be entering these figures.)

Did you find $198,900 in E11 for April total sales? Yes No
This total (as well as other totals) will change automatically after you enter the Denver figures.**

If you found different answers, please contact your instructor.

**Note to teacher: Please modify cell coordinates if necessary for your spreadsheet package.

Activity Sheet Key

A 5.3

Locate Certain Cells on a Spreadsheet

After loading spreadsheet program and data diskette with existing spreadsheet, retrieve the spreadsheet named Sales.

Write your answers on the lines provided:

1. What is the January sales figure for Chicago? 87900
2. In which cell was the above figure found? B7
3. What is the March figure for Los Angeles? 32700
4. In which cell was the above figure found? D9
5. What is the February figure for Denver? none
6. In which cell was the above figure found? C8
7. What is the total sales figure for April? 139500
8. In which cell was the above figure found? E11
9. Place your cursor (pointer) on cell B11.** What data shows on the screen for that cell? @sum (B4, B9) (This is the formula which affects the total figure.)

SELF-CHECK

Circle Yes or No for your response:

Did you find 87,900 in cell B7 for Chicago? Yes**

Did you find 32,700 in cell D9 for Los Angeles? Yes**

Did you find the Denver sales figures missing? Yes
If your answer is Yes, "good!"
(You will be entering these figures.)

Did you find 198,900 in E11 for April total sales? Yes**
This total (as well as other totals) will change automatically after you enter the Denver figures.

Activity Sheet Key A 5.3 (continued)

If you found different answers, please contact your instructor.

**Note to teacher: Please modify cell coordinate if necessary for your spreadsheet package.

AREA: Identify and Use Electronic Spreadsheets

LEARNER OUTCOME: Enter Data on an Existing Spreadsheet

LEARNER OUTCOME: A 5

PERFORMANCE/PRODUCT CHECKLIST

STUDENT ______________________________ PERFORMANCE ATTEMPT 1 2 3 4

EVALUATOR ____________________________ DATE ______________________

EVALUATION SITE ____________________

TERMINAL PERFORMANCE OBJECTIVE:

Given appropriate software, software manual, and workstation, enter data on an existing spreadsheet. To master this performance, you must score at least 85% on a product checklist.

DIRECTIONS TO THE STUDENT:

Before attempting this performance for mastery, review this checklist carefully. You will be evaluated on the basis of this checklist. When you feel you are ready for evaluation, contact your instructor. You must complete your performance within 15 minutes and must score 5 out of 5 points or 100% for mastery. Critical items are marked with an asterisk. These items must be satisfactorily completed.

DIRECTIONS TO THE INSTRUCTOR:

The student will contact you when ready for evaluation. The student must complete the performance within 15 minutes and must score 5 out of 5 points accurately or 100% for mastery; all items marked with an asterisk must be completed satisfactorily.

AREA: Identify and Use Electronic Spreadsheets

LEARNER OUTCOME: Enter Data on an Existing Spreadsheet

LEARNER OUTCOME: A 5

Contact instructor for name of spreadsheet.

-- Retrieve spreadsheet entitled Budget.
-- Enter at least 10 expense figures. You may decide the amount.
-- Check to be sure that your total expenses do not exceed your total income.
-- Change your figures if necessary.
-- Print the spreadsheet.

PERFORMANCE/PRODUCT CHECKLIST

CRITICAL ITEMS	ITEMS TO BE CHECKED OR OBSERVED	RATING YES/NO
*1.	The student has submitted a printed copy of the assigned spreadsheet?	___ ___
*2.	The student's expense total does not exceed the income total?	___ ___
*3.	When necessary, the student has obtained instructor help if available?	___ ___
*4.	The student has entered at least 10 expense items?	___ ___
*5.	The student has worked alone?	___ ___

TOTAL POINTS 5

POINTS NECESSARY 5

SCORE ______

PERFORMANCE/PRODUCT CHECKLIST

DATA

A 5

Teacher has prepared the spreadsheet entitled BUDGET. This is current status of existing spreadsheet before student enters data.

```
          A         B         C         D         E         F         G
 1                          BUDGET
 2                Week 1    Week 2    Week 3    Week 4    Total
 3    ---------------------------------------------------------------
 4    Lunch                                                   0.00
 5    Snacks                                                  0.00
 6    Movies                                                  0.00
 7    Tapes                                                   0.00
 8    Clothes                                                 0.00
 9    Misc                                                    0.00
10    Total Exp     0.00      0.00      0.00      0.00        0.00
11    ---------------------------------------------------------------
12    Income       25.00     30.00    100.00     20.00      175.00
13                Income    Less      Expenses =            175.00
14
15
```

Performance/Product Checklist

Correct Example Key 1

A 5

(Answers will vary)

```
         A         B         C         D         E         F         G         H
21                        BUDGET
22               Week 1    Week 2    Week 3    Week 4    Total
23   ------------------------------------------------------------
24   Lunch        10.31     12.41     13.43     12.45     48.60
25   Snacks        3.85      1.75      2.25      2.80     10.65
26   Movies                  5.00                4.50      9.50
27   Tapes                             7.00                7.00
28   Clothes                          50.76               50.76
29   Misc                   20.00                         20.00
30   Total Exp    14.16     39.16     73.44     19.75    146.51
31   ------------------------------------------------------------
32   Income       25.00     30.00    100.00     20.00    175.00
33               Income    Less      Expenses =           28.49
34
35
36
37
38
39
40
```

(income was greater than expenses)

Performance/Product Checklist

Incorrect Example Key 2

A 5

(Answers will vary)

```
          A         B         C         D         E         F         G         H
21                         BUDGET
22                Week 1   Week 2    Week 3    Week 4    Total
23   ------------------------------------------------------------
24   Lunch         10.31    12.41     13.43     12.45     48.60
25   Snacks         3.85     1.75      2.25      2.80     10.65
26   Movies                  5.00                4.50      9.50
27   Tapes                             7.00                7.00
28   Clothes       13.95              50.76     23.90     88.61
29   Misc                   20.00                         20.00
30   Total Exp     28.11    39.16     73.44     43.65    184.36
31   ------------------------------------------------------------
32   Income        25.00    30.00    100.00     20.00    175.00
33                Income   Less      Expenses =           -9.36
34
35                                                     (expenses exceeded
36                                                       total income)
37
38
39
40
```

INFORMATION PROCESSING

Area: Identify and Use Electronic Spreadsheets

Learner Outcome A 6: Design, Enter, and Save Data on Spreadsheets

Purpose: To input information on a spreadsheet, it is necessary to make intelligent decisions regarding the design (layout) of a spreadsheet, to enter data accurately, and to remember to save the spreadsheet under an appropriate name.

Objective: Given the appropriate software, software manual, and workstation, design, enter, and save data on spreadsheets. To master this learner outcome, you must score 100% on a performance checklist.

Estimated Class Time: 4 hrs.

Learner Outcome A 6

Design, Enter, and Save Data on a Spreadsheet

LEARNING STEPS

READ:	Information Sheet A 6.1, "Design, Enter, and Save Data on a Spreadsheet."
OBSERVE:	Teacher-led demonstration on entering information on a spreadsheet (labels and values).
READ:	Software manual on commands for entering labels and numbers (values) and adjusting column width on spreadsheet (if possible).
COMPLETE:	Activity Sheet A 6.2, "Design, Enter, and Save Data on a Spreadsheet."
COMPLETE:	Performance/Product Checklist A 6, "Design, Enter, and Save Data on a Spreadsheet."
CONTACT:	Your instructor.

RESOURCES

A 6

Castlewhite, David M., Lawrence J. Chisausky, and Patricia Kronberg, VisiCalc: Home and Office Companion, McGraw-Hill, 1982.

Desautels, Edouard J., VisiCalc, William C. Brown Company Publishers, 1982.

Fylstra, Dan, and Joyce Uggla, VisiCalc User's Guide, Personal Software, Inc., 1982.

Gruschcow, Jack, The VisiCalc Applications Book, Reston Publishing Company, 1983.

Mandell, Steven L., Introduction to Computers Using the Apple II, West Publishing Company, 1985.

MultiPlan - Electronic Worksheet, Microsoft Corporation, 1983.

MultiPlan Training Guide, Wang Laboratories, Inc., 1983.

Peterson, Henry H., Developing Computer Solutions for Your Business Problems, Prentice-Hall, Inc., 1982.

Wolff, Terris B., Microcomputer Applications: Using Small Systems Software, Boyd & Fraser Publishing Company, 1984.

Wolverton, Van, VisiCalc Guide, Software Arts, Inc., 1981.

EQUIPMENT/MATERIALS NEEDED

Software program for spreadsheets

Data diskette

Computer/printer

Software manual instructions for
entering labels, and values
widening columns

Prepared demonstration to show creating; entering labels and values; and saving and naming spreadsheet

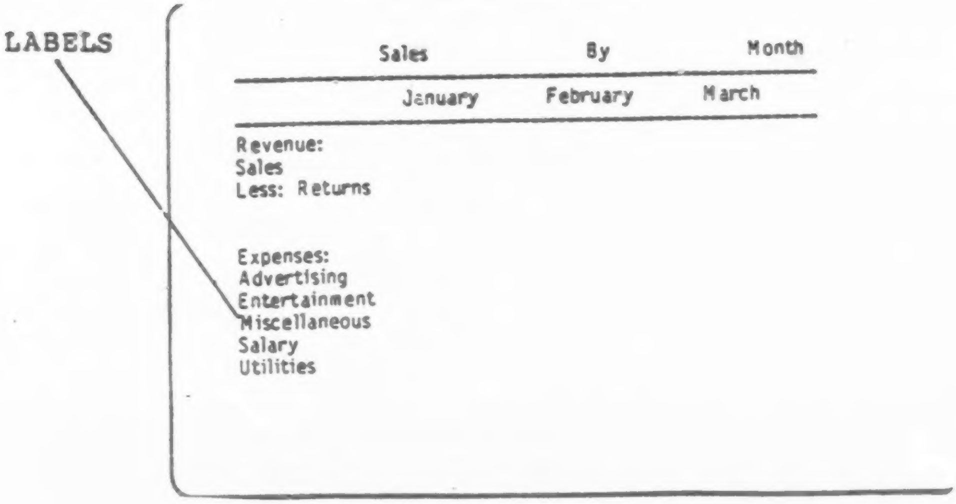
INFORMATION SHEET

A 6.1

Design, Enter, and Save Data on a Spreadsheet

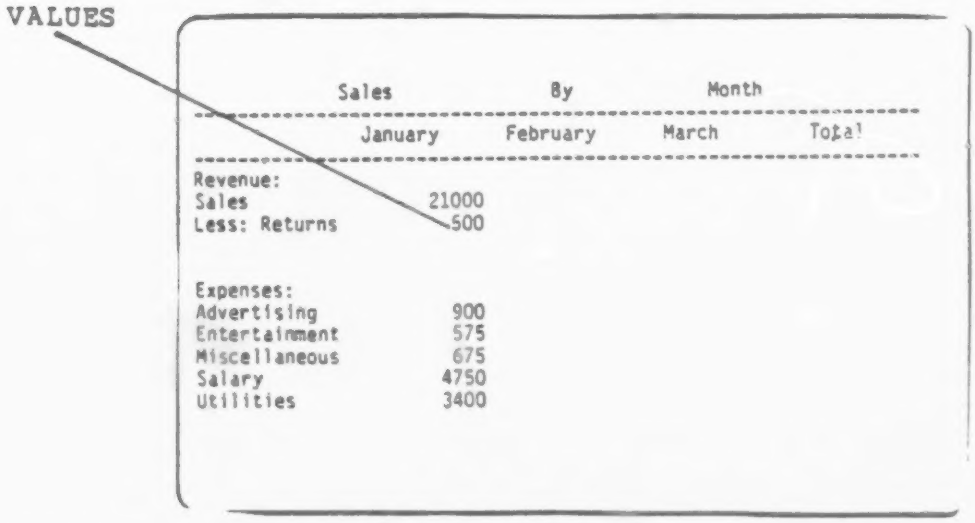
What types of data can be stored on spreadsheets? Data can be divided into two categories:

1. Labels — Labels are used to describe the data. They consist of alphabetic characters, numbers, and symbols. Examples of labels might be sales, sales returns, advertising expense, and salaries expense.



	Sales	By	Month
	January	February	March
Revenue:			
Sales			
Less: Returns			
Expenses:			
Advertising			
Entertainment			
Miscellaneous			
Salary			
Utilities			

2. Values — Values are always numbers. These numbers may be used in calculations, or they may be formulas.



	Sales	By	Month	
	January	February	March	Total
Revenue:				
Sales	21000			
Less: Returns	500			
Expenses:				
Advertising	900			
Entertainment	575			
Miscellaneous	675			
Salary	4750			
Utilities	3400			

INFORMATION SHEET A 6.1 (continued)

LABELS

Most spreadsheet programs are designed to deal with numbers; therefore, when you want to enter words instead of numbers, you must tell the system that you want to enter alphabetic information. Consult your software manual for the correct procedure to follow.

Labels will align at the left unless a command is used to format them in another manner. Options to align labels at the right or to center labels are available on many software packages.

TO ENTER LABELS

1. Move cursor to desired cell using arrow keys or GO TO command.
2. Enter alpha instruction where required.
3. Key in label.
4. If you make an error when keying in a label, consult your software manual for the key to be used to correct the error.
5. To lock in the data and complete the entry, the operator must depress the RETURN/ENTER key or one of the directional arrow keys.

VALUES

Numbers will align at the right when entered. Numbers may be displayed in a variety of formats. You should consult your software manual for correct procedures.

Possible choices for displaying numbers are shown below:

Cont (continuous)	Text that exceeds column width is fully displayed.
Gen (general)	Numbers displayed the way they are entered.
Int (integer)	4.35 shown as 4
$ (Dollars/Currency)	$59
* (Bar Graph)	5 is shown as *****

INFORMATION SHEET A 6.1 (continued)

% (Percent)	.0893 is displayed as 8.93

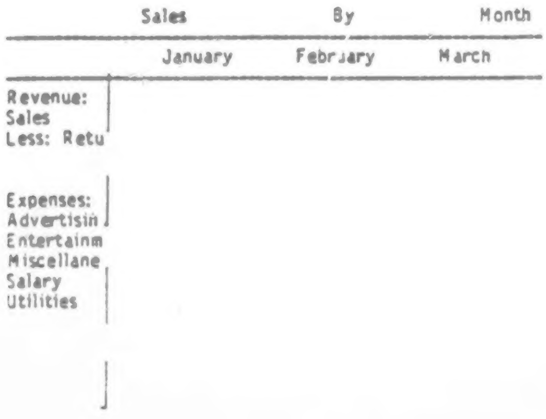
TO ENTER VALUES

1. Move cursor to desired cell using arrow keys or GO TO command.
2. Normally no special instruction is needed to begin entering values. Consult your software manual.
3. Key in value (numeric data).
4. If you make an error when keying in a value, consult your software manual for the key to be used to correct the error.
5. To lock in the data and complete the entry, the operator must depress the RETURN/ENTER key or one of the directional arrow keys.

WIDENING COLUMNS

Column width on spreadsheet programs varies; however, it can be adjusted to accommodate longer labels. In the example shown below, "Less: Returns" will not fit in Column 1. Column width can be changed easily. Consult your software manual for instructions.

Column 1 is too short.



	Sales	By	Month
	January	February	March
Revenue:			
Sales			
Less: Retu			
Expenses:			
Advertisin			
Entertainm			
Miscellane			
Salary			
Utilities			

INFORMATION SHEET A 6.1 (continued)

Column 1 has been adjusted. Now you can see "Less: Returns."

Sales By Month

	January	February	March
Revenue:			
Sales			
Less: Returns			
Net Sales			
Expenses:			
Advertising			
Entertainment			
Miscellaneous			
Salary			
Utilities			

ACTIVITY SHEET

A 6.2

Design, Enter, and Save Data on a Spreadsheet

The purpose of this activity is to determine whether or not you have understood how to design, enter, and save data on a spreadsheet.

Follow exactly the steps listed below.

Step 1* Turn on power.

Step 2* Insert proper disk(s).

*Note: Refer to your software manual. Some spreadsheet applications reverse these two steps.

Step 3 Boot the system.

Step 4 Refer to your software manual to change column width. Different packages use different instructions to accomplish this task. Follow the instructions in your manual to change all columns to a width of 12.

Step 5 Move cell pointer to coordinate B1. Insert the label Sales.

Step 6 Move cell pointer to coordinate C1. Insert the label By.

Step 7 Move cell pointer to coordinate D1. Insert the label Month.

Note: If you completed Steps 1-7 correctly, you should now see the title of your first spreadsheet.

Sales	By	Month

Step 8 Move cell pointer to coordinate B2. Insert the label January.

Step 9 Move cell pointer to coordinate C2. Insert the label February.

Step 10 Move cell pointer to coordinate D2. Insert the label March.

ACTIVITY SHEET

A 5.4

Enter Data on a Spreadsheet

The purpose of this activity is to determine whether or not you have understood how to enter data on a spreadsheet.

The spreadsheet Sales must be loaded and displayed before doing these steps.

1. Enter the sales figures for Denver so that your spreadsheet looks like the example below.
2. Save the spreadsheet again as Sales.
3. Print the whole spreadsheet.
4. Submit the printed spreadsheet to your instructor.

```
                 A              B         C         D         E         F
 1                           SALES                 BY                 MONTH
 2    Profit Center            Jan       Feb       Mar       Apr      Total
 3    New York               65500     40100     55600     66000
 4    Chicago                87900     83900     77050     94300
 5    Denver                 12660     22590     44100     47900
 6    Los Angeles            33000     19800     32700     38600
 7    Totals                199060    166390    209450    246800
 8
 9
10                           SALES
11
12
```

The procedures involved above will vary depending on your system.

WRITTEN EXAM A 1 (continued)

T F 15. Spreadsheet software creates financial models by processing data by column, row, or individual location through the use of simple commands.

ACTIVITY SHEET A 6.2 (continued)

Step 11	Move cell pointer to coordinate A3. Insert the label <u>Revenue</u>:.
Step 12	Move cell pointer to coordinate A4. Insert the label <u>Sales</u>.
Step 13	Move cell pointer to coordinate A5. Insert the label: <u>Less:</u> <u>Returns</u>.

Note: Since your column width is only 12 characters wide, your complete label does not appear on your spreadsheet. Do not <u>FRET</u>! Your information has been entered. <u>Now change your column width to 13 spaces</u>.

Step 14	Move cell pointer to coordinate A8. Insert the label <u>Net Sales</u>.
Step 15	Move cell pointer to coordinate A10. Insert the label <u>Expenses</u>:.

Note: At this point you may enter the remainder of labels necessary in column A. Your spreadsheet will now resemble the spreadsheet below.

```
             A              B           C           D               E          F
    1                    Sales        By          Month
    2                    January      February    March                Total
    3   Revenue:
    4   Sales
    5   Less: Returns
    6   Net Sales
    7
    8   Expenses:
    9   Advertising
   10   Entertainment
   11   Miscellaneous
   12   Salary
   13   Utilities
   14   Total
   15   Net Income
```

Step 16	Move cell pointer to coordinate B4. Insert the number (value) <u>21000</u>. Do not use commas, dollar signs, or decimal points.
Step 17	Move cell pointer to coordinate B5. Insert the number (value) <u>500</u>.
Step 18	Move cell pointer to coordinate B9. Insert the number (value) <u>900</u>. At this point, you may enter the remainder of the numbers in Column B (see next page).

ACTIVITY SHEET A 6.2 (continued)

Note: Upon completion of this step, your spreadsheet should resemble the following spreadsheet.

```
            A               B           C            D              E         F
 1                      Sales       By          Month
 2                      January     February    March                 Total
 3    Revenue:
 4    Sales                21000
 5    Less: Returns          500
 6    Net Sales
 7
 8    Expenses:
 9    Advertising            900
10    Entertainment          575
11    Miscellaneous          675
12    Salary                4750
13    Utilities             3400
14    Total
15    Net Income
```

Step 19 Move cell pointer to coordinate C4. Insert the number (value) 24500.

Step 20 Move cell pointer to coordinate C5. Insert the number (value) 860. At this point you may enter the remainder of the numbers (values) in Column C.

Note: Upon completion of this step, your spreadsheet should resemble the spreadsheet below.

```
            A               B           C            D              E         F
 1                      Sales       By          Month
 2                      January     February    March                 Total
 3    Revenue:
 4    Sales                21000       24500
 5    Less: Returns          500         860
 6    Net Sales
 7
 8    Expenses:
 9    Advertising            900        1250
10    Entertainment          575         400
11    Miscellaneous          675         870
12    Salary                4750        5600
13    Utilities             3400        3400
14    Total
15    Net Income
```

98

ACTIVITY SHEET A 6.2 (continued)

Step 21 Move cell pointer to coordinate D4. Insert the number (value) 22250. At this point, you may enter the remainder of the numbers (values) in Column D.

Note: Upon completion of this step, your spreadsheet should resemble the spreadsheet below.

	A	B	C	D	E	F
1		Sales	By	Month		
2		January	February	March	Total	
3	Revenue:					
4	Sales	21000	24500	22250		
5	Less: Returns	500	860	900		
6	Net Sales					
7						
8	Expenses:					
9	Advertising	900	1250	1300		
10	Entertainment	575	400	750		
11	Miscellaneous	675	870	750		
12	Salary	4750	5600	6200		
13	Utilities	3400	3400	3400		
14	Total					
15	Net Income					

Step 22 Refer to your software manual and the task presented in this guide on "Saving" data. SAVE your spreadsheet under the name REVEXP.

Step 23 Refer to your software manual and tasks presented in this guide on "Printing" data. PRINT your spreadsheet.

Step 24 See your instructor.

ACTIVITY SHEET A 6.2 (continued)

Design, Enter, and Save Data on a Spreadsheet

Compare your spreadsheet with the one shown at the bottom of the page. Answer the questions listed below.

CRITICAL ITEMS	ITEMS TO BE OBSERVED OR CHECKED	RATING YES/NO
1.	Were all column labels entered accurately?	___ ___
2.	Were all column labels in correct cells as directed?	___ ___
3.	Were all row labels entered accurately?	___ ___
4.	Were all row labels in correct cells as directed?	___ ___
5.	Were all values entered accurately?	___ ___
6.	Were all values entered in the correct cells?	___ ___
7.	Was spreadsheet title entered correctly?	___ ___
8.	Was spreadsheet saved on disk under title REVEXP?	___ ___
9.	Was printout submitted to instructor?	___ ___
10.	Was the workstation powered down properly?	___ ___
11.	Were all disks, software manual, and other supplies returned to the proper place?	___ ___

	A	B	C	D	E	F
1		Sales	By	Month		
2		January	February	March	Total	
3	Revenue:					
4	Sales	21000	24500	22250		
5	Less: Returns	500	860	900		
6	Net Sales					
7						
8	Expenses:					
9	Advertising	900	1250	1300		
10	Entertainment	575	400	750		
11	Miscellaneous	675	870	750		
12	Salary	4750	5600	6200		
13	Utilities	3400	3400	3400		
14	Total					
15	Net Income					

AREA: Identify and Use Electronic Spreadsheets

LEARNER OUTCOME: Design, Enter, and Save Data on a Spreadsheet

LEARNER OUTCOME: A 6

PERFORMANCE/PRODUCT CHECKLIST

STUDENT ______________________________ PERFORMANCE ATTEMPT 1 2 3 4

EVALUATOR ____________________________ DATE ______________________

EVALUATION SITE ____________________

TERMINAL PERFORMANCE OBJECTIVE:

Given appropriate software, software manual, and workstation, design, enter, and save data correctly.

DIRECTIONS TO THE STUDENT:

Before attempting this performance for mastery, carefully review this checklist. You will be evaluated on the basis of this checklist. When you feel you are ready for evaluation, contact your instructor. You must complete your performance within 40 minutes and must score at least 11 out of 11 points or 100% for mastery. Critical items are marked with an asterisk (*). These items must be completed satisfactorily.

DIRECTIONS TO THE EVALUATOR:

The student will contact you when ready for evaluation. The student must complete this performance within 40 minutes and must score 11 out of 11 points or 100% for mastery, and all items marked with an asterisk (*) must be completed satisfactorily.

PERFORMANCE/PRODUCT CHECKLIST

PROBLEM

A 6

Design, Enter, and Save Data on a Spreadsheet

Design, enter, save (under name Budget2), and print an electronic spreadsheet using the information provided below.

EXPENSES:	APRIL	MAY
Rent	650	650
Utilities	93	80
Telephone	45	45
VISA	62	70
Insurance	50	50
Food	160	160
Clothing	100	70
Household	50	50
Child Care	120	120
Car Payment	340	340
Entertainment	100	80
Savings	20	20

PERFORMANCE /PRODUCT CHECKLIST

A 6

CRITICAL ITEMS	ITEMS TO BE CHECKED OR OBSERVED	RATING YES	RATING NO
* 1.	Were all column labels entered correctly?	___	___
* 2.	Were all column labels in correct cells as directed?	___	___
* 3.	Were all row labels entered accurately?	___	___
* 4.	Were all row labels in correct cells as directed?	___	___
* 5.	Were all values entered accurately?	___	___
* 6.	Were all values entered in the correct cells?	___	___
* 7.	Was spreadsheet saved under the title of Budget2?	___	___
* 8.	Did student print out one copy of spreadsheet?	___	___
* 9.	Did the student work alone?	___	___
*10.	Was the workstation powered down properly?	___	___
*11.	Were all disks, software manuals, and other supplies returned to the proper place?	___	___

TOTAL POINTS 11

POINTS NECESSARY 11

SCORE ______

INFORMATION PROCESSING

Area: Identify and Use Electronic Spreadsheets

Learner Outcome A 7: Recall, Modify, and Print a Spreadsheet

Purpose: Spreadsheets are frequently updated, including inserting or deleting data, changing formulas and values, and moving and copying data.

Objective: Given the appropriate software, software manual, and workstation, recall, edit, and print a spreadsheet. To master this learner outcome, you must score 9 out of 10 or 90% on a written exam and 100% on a product checklist.

Estimated Class Time: 4 hrs.

Learner Outcome A 7

Recall, Modify, and Print a Spreadsheet

LEARNING STEPS

READ: Information Sheet A 7.1, "Recall, Modify, and Print a Spreadsheet."

OBSERVE: Teacher-led demonstration on recalling and editing a spreadsheet.

READ: Software manuals on the following: Correcting errors, adding data, deleting data, inserting rows and columns, formatting, copying, and moving.

COMPLETE: Activity Sheet A 7.2, "Recall, Modify, and Print a Spreadsheet."

COMPLETE: Activity Sheet A 7.3, "Recall, Modify, and Print a Spreadsheet."

CONTACT: Instructor.

COMPLETE: Written Exam A 7, "Recall, Modify, and Print a Spreadsheet."

COMPLETE: Performance/Product Checklist A 7, "Recall, Modify, and Print a Spreadsheet."

CONTACT: Instructor.

RESOURCES

A 7

Castlewhite, David M., Lawrence J. Chisausky, and Patricia Kronberg, VisiCalc: Home and Office Companion, McGraw-HIll, 1982.

Desautels, Edouard J., VisiCalc, William C. Brown Company, Publishers, 1982.

Fylstra, Dan, and Joyce Uggla, VisiCalc User's Guide, Personal Software Inc., 1982.

Gruschcow, Jack, The VisiCalc Applications Book, Reston Publishing Company, 1983.

Mandell, Steven L., Introduction to Computers Using the Apple II, West Publishing Company, 1985.

MultiPlan - Electronic Worksheet, Microsoft Corporation, 1983.

MultiPlan Training Guide, Wang Laboratories, Inc., 1983.

EQUIPMENT/SOFTWARE MATERIALS NEEDED

Software program for spreadsheets

Data diskette

Computer

Software manual instructions for
    editing labels, values, and formulas
    inserting and deleting rows and columns
    formatting
    copying
    moving

INFORMATION SHEET

A 7.1

Recall, Modify, and Print a Spreadsheet

All spreadsheet software packages have editing capabilities. The structure of the spreadsheet may be altered with this feature. For instance, you might wish to move rows or columns, insert rows or columns, or delete rows or columns. Also, you will be able to update the data located in the cells. If you notice an error, simply use the edit feature to make needed changes. This feature can save you a great deal of time.

CORRECT ERRORS

Changes can be made in entries after they have been keyboarded. The cell pointer must be moved to the cell containing the data to be changed; the edit function key or feature may then be used to insert a character or delete a character within that cell. For instance, you need to add an "A" to the label "DTE." This could be accomplished using the "error correction" feature found in most spreadsheet packages.

ADD DATA

It is possible to add data to a spreadsheet that has been saved into a disk. Recall/load the spreadsheet, move to the appropriate cells, insert the additional information, and press the RETURN/ENTER key or a directional arrow key.

DELETE DATA

Data may be deleted on a spreadsheet in a number of ways. Information contained in a single cell may be deleted, an entire column or row may be deleted, or the entire spreadsheet may be deleted or cleared from the screen. It may be necessary for you to specify a range of data to be deleted. Your software manual should be consulted for the correct procedure to follow when naming the range (refer to Guide A 4.1 for additional information on ranges).

INSERT

One of the more powerful features of spreadsheet packages is "insert." With almost all spreadsheets, you can insert a row or a column. If you leave out vital information, this can be inserted easily without rekeying the entire spreadsheet.

INFORMATION SHEET A 7.1 (continued)

FORMATTING

Changes may be made in the format of the spreadsheet after it has been keyboarded. Column width may be changed, and the manner in which values are expressed may be altered. For instance, numbers appear on the screen as integers (5, 29, 67). Labels may be formatted to "print on the screen" centered or at the right. Numerous other formatting capabilities exist, depending upon the software package.

Cells may be formatted individually or the entire spreadsheet may be formatted globally, depending on your software.

COPY

It may be necessary for you to create two spreadsheets that are almost identical. The copy feature will allow you to copy part or all of a spreadsheet. Generally, a range of cells must be named before data can be copied.

MOVE

Using the move feature, rearranging the rows or columns on a spreadsheet is possible. In the example shown below, you decide to move the corn chips so that items are in alphabetical order. You specify the row to move, follow the instructions outlined in your software manual, and the row will move to the top.

ITEMS	PRICE	QUANTITY	COST
Potato Chips	1.19	2.00	2.38
Pretzels	0.79	3.00	2.37
Corn Chips	1.69	1.00	1.69

ITEMS	PRICE	QUANTITY	COST
Corn Chips	1.69	1.00	1.69
Potato Chips	1.19	2.00	2.38
Pretzels	0.79	3.00	2.37

ACTIVITY SHEET

A 7.2

Recall, Modify, and Print a Spreadsheet

The purpose of this activity is to determine whether or not you have understood how to recall, modify, and print a spreadsheet.

Complete the following statements:

1. When correcting errors made in a single entry, the _______________ must be moved to the cell containing the data to be changed.
2. It (is/is not) possible to add data to a spreadsheet that has been saved to disk.
3. Data may be deleted from a ________________ cell, from a ____________ or row of cells, or from entire ______________.
4. It is possible to insert both ___________ and _________ in an existing spreadsheet.
5. List five formatting changes that may be made in an existing spreadsheet (consult your software manual for formatting features).

   a. ____

   b. ____

   c. ____

   d. ____

   e. ____
6. Generally, a range of cells must be named before data can be ______________.
7. Rearranging columns and rows of cells is known as _________.

Activity Sheet Key

A 7.2

Recall, Modify, and Print a Spreadsheet

Complete the following statements:

1. When correcting errors made in a single entry, the cell pointer must be moved to the cell containing the data to be changed.

2. It is possible to add data to a spreadsheet that has been saved to disk.

3. Data may be deleted from a single cell, from a column or row of cells, or from entire spreadsheet.

4. It is possible to insert both rows and columns in an existing spreadsheet.

5. List five formatting changes that may be made in an existing spreadsheet (consult your software manual for formatting features).

    a. values formatted no decimal, 2 decimals, $, etc.

    b. delete row or column

    c. center or justify right labels

    d. insert row or column

    e. remaining spreadsheet

6. Generally, a range of cells must be named before data can be copied.

7. Rearranging columns and rows of cells is known as moving.

ACTIVITY SHEET

A 7.3

Recall, Modify, and Print a Spreadsheet

STEP 1 Load spreadsheet software.

STEP 2 Recall the spreadsheet you created in Guide A 6 entitled REVEXP. Use the move function to move miscellaneous expense below utilities. Your spreadsheet should now look like the sample below. If for some reason your spreadsheet has been lost, damaged, or destroyed you will need to reenter the data shown below.

(NOTE: Make certain you have a copy of the spreadsheet shown below saved on disk before proceeding.)

```
          A               B           C           D            E
1                    Sales       By          Month
2                    January     February    March        Total
3    Revenue:
4    Sales              21000       24500       22250
5    Less: Returns        500         860         900
6    Net Sales
7
8    Expenses:
9    Advertising          900        1250        1300
10   Entertainment        575         400         750
11   Salary              4750        5600        6200
12   Utilities           3400        3400        3400
13   Miscellaneous        675         870         750
14   Total
15   Net Income
```

ACTIVITY SHEET A 7.3 (continued)

STEP 3 Let's do some editing. Delete all data stored in Column E.

STEP 4 Insert 2 blank lines above "Revenue" and one blank line above "Total." Also insert a blank line under the title. Insert a broken line (hyphens) across the cell above and below months line using the copy function.

Check your monitor. It should look like the sample shown below.

```
            A               B               C               D
 1                      Sales           By             Month
 2    ------------------------------------------------------------
 3                      January         February       March
 4    ------------------------------------------------------------
 5
 6    Revenue:
 7    Sales                 21000           24500           22250
 8    Less: Returns           500             860             900
 9    Net Sales
10
11    Expenses:
12    Advertising             900            1250            1300
13    Entertainment           575             400             750
14    Salary                 4750            5600            6200
15    Utilities              3400            3400            3400
16    Miscellaneous           675             870             750
17
18    Total
19
20    Net Income
```

STEP 5 Save your changes under a new name (REREV) and clear your screen.

STEP 6 Recall spreadsheet you stored in STEP 5.

STEP 7 Print a copy of your spreadsheet with changes.

STEP 8 Format globally so values are displayed using the $ or currency option, whichever is available on your system. Display two decimals.

RENAME

The rename feature allows you to retrieve a spreadsheet file from disk, make any changes you desire, and save or file it under a new name. This allows you to keep the spreadsheet in its original form and with changes. You might create a spreadsheet to be used for weekly expenses and then store the blank form (also called grid or template). You could recall this form, fill it in, and store it under a new name. Each week you could take advantage of this feature and save yourself a great deal of time.

ACTIVITY SHEET A 7.3 (continued)

STEP 9 Insert data for April as follows:

Sales	25,460.00
Returns	840.00
Expenses:	
Advertising	1,200.80
Entertainment	700.70
Salary	6,290.30
Utilities	3,973.20
Miscellaneous	750.00

STEP 10 Check your screen with printout that follows:

```
           A              B              C              D              E
 1                    Sales          By             Month
 2    ------------------------------------------------------------------
 3                    January        February       March          April
 4    ------------------------------------------------------------------
 5
 6    Revenue:
 7    Sales           $21,000.00     $24,500.00     $22,250.00     $25,460.00
      Less: Returns      $500.00        $860.00        $900.00        $840.00
 9    Net Sales
10
11    Expenses:
12    Advertising        $900.00      $1,250.00      $1,300.00      $1,200.80
13    Entertainment      $575.00        $400.00        $750.00        $700.70
14    Salary           $4,750.00      $5,600.00      $6,200.00      $6,290.30
15    Utilities        $3,400.00      $3,400.00      $3,400.00      $3,973.20
16    Miscellaneous      $675.00        $870.00        $750.00        $750.00
17
18    Total
19
20    Net Income
```

STEP 11 Change column width for all columns to 17.

STEP 12 Insert a double underscore--usually using equals key--(=======) across the cell directly below "Net Income."

Instructor must observe as you copy double underscore across columns B to E.

____
(instructor's signature)

ACTIVITY SHEET A 7.3 (continued)

STEP 13 Save completed spreadsheet using a new name (REREV2), retrieve from disk, and print (using condensed if needed to fit across page).

STEP 14 Check your printout with the printout that follows. When it matches and you have answered the questions on page 13, hand both to your instructor.

```
                  Sales            By              Month
-------------------------------------------------------------------------------
                  January          February        March           April
-------------------------------------------------------------------------------

Revenue:
Sales             $21,000.00       $24,500.00      $22,250.00      $25,460.00
Less: Returns        $500.00          $860.00         $900.00         $840.00
Net Sales

Expenses:
Advertising          $900.00        $1,250.00       $1,300.00       $1,200.80
Entertainment        $575.00          $400.00         $750.00         $700.70
Salary             $4,750.00        $5,600.00       $6,200.00       $6,290.30
Utilities          $3,400.00        $3,400.00       $3,400.00       $3,973.20
Miscellaneous        $675.00          $870.00         $750.00         $750.00

Total

Net Income
===============================================================================
```

ACTIVITY SHEET A 7.3 (continued)

Directions: Compare your spreadsheet with the one shown on page 12. Answer the questions listed below.

		YES/NO
1.	Was the column April entered correctly?	___ ___
2.	Were blank rows inserted as directed?	___ ___
3.	Was miscellaneous expense moved to proper location?	___ ___
4.	Were all values entered correctly?	___ ___
5.	Were all values formatted to dollars and cents?	___ ___
6.	Was column width widened to 17 spaces?	___ ___
7.	Was double underscore inserted properly using copy (report) function?	___ ___
8.	Did student save spreadsheet under STEP 5 under the name REREV?	___ ___
9.	Did student save spreadsheet under STEP 14 under the name REREV2?	___ ___
10.	Did student print spreadsheet directed in STEP 7?	___ ___
11.	Did student print spreadsheet as directed in STEP 14?	___ ___
12.	Was the workstation powered down properly?	___ ___
13.	Were all disks, software manuals, and other supplies returned to the proper place?	___ ___

WRITTEN EXAM

A 7

Recall, Modify, and Print a Spreadsheet

The purpose of this exam is to determine whether or not you have understood the information presented on recalling, modifying, and printing a spreadsheet.

Each of the statements is either true or false. If the answer is true, circle T; if the answer is false, circle F. To master this exam, you must score 9 out of 10 points or 90%.

WRITTEN EXAM

A 7

Recall, Modify, and Print a Spreadsheet

Circle T if the answer is true; circle F if the answer is false.

T F 1. All spreadsheet software packages have editing capabilities.

T F 2. Changes may be made in entries after they have been keyboarded.

T F 3. It is not possible to retrieve a spreadsheet that has been saved to disk and make changes to this spreadsheet.

T F 4. Rows and columns may be moved from one position to another on the spreadsheet.

T F 5. Once data has been entered on a spreadsheet, column width may not be changed.

T F 6. If you forget some important row labels, you may go back and insert as many rows as needed to add the required labels.

T F 7. Values that appear on a spreadsheet as integers (whole numbers) may not be reformatted so they will be displayed in currency format with two decimals.

T F 8. Changes made globally affect the contents of only a single cell.

T F 9. The edit feature should be used when possible because of the savings in time.

T F 10. Only columns may be arranged using the move feature.

Written Exam Key

A 7

Recall, Modify, and Print a Spreadsheet

Circle T if the answer is true; circle F if the answer is false.

TRUE 1. All spreadsheet software packages have editing capabilities.

TRUE 2. Changes may be made in entries after they have been keyboarded.

FALSE 3. It is not possible to retrieve a spreadsheet that has been saved to disk and make changes to this spreadsheet.

TRUE 4. Rows and columns may be moved from one position to another on the spreadsheet.

FALSE 5. Once data has been entered on a spreadsheet, column width may not be changed.

TRUE 6. If you forget some important row labels, you may go back and insert as many rows as needed to add the required labels.

FALSE 7. Values that appear on a spreadsheet as integers (whole numbers) may not be reformatted so they will be displayed in currency format with two decimals.

FALSE 8. Changes made globally affect the contents of only a single cell.

TRUE 9. The edit feature should be used when possible because of the savings in time.

FALSE 10. Only columns may be arranged using the move feature.

AREA: Identify and Use Electronic Spreadsheets

LEARNER OUTCOME: Recall, Modify, and Print a Spreadsheet

LEARNER OUTCOME: A 7

PERFORMANCE/PRODUCT CHECKLIST

STUDENT ______________________________ PERFORMANCE ATTEMPT 1 2 3 4

EVALUATOR ____________________________ DATE ______________________

EVALUATION SITE ____________________

TERMINAL PERFORMANCE OBJECTIVE:

Given appropriate software, software manual, and workstation, recall, modify, and print a spreadsheet. To master this guide, you must score 9 out of 10 points on a written exam and 100% on a product checklist.

DIRECTIONS TO THE STUDENT:

Before attempting this guide for mastery, review carefully this checklist. You will be evaluated on the basis of this checklist. When you feel you are ready for evaluation, contact your instructor. You must complete your performance within 40 minutes and must score at least 11 out of 11 points or 100% for mastery.

DIRECTIONS TO THE EVALUATOR:

The student will contact you when ready for evaluation. The student must complete the performance within 40 minutes and must score 11 out of 11 points or 100% for mastery.

PERFORMANCE/PRODUCT CHECKLIST

A 7

Recall, Modify, and Print a Spreadsheet

Recall spreadsheet, modify as instructions indicate, save, and print out.

---

1. Recall spreadsheet entitled Sales.
2. Move the New York row beneath Los Angeles to put all in alphabetic order.
3. Insert blank row above and below spreadsheet title.
4. Widen column width by two spaces from original width.
5. Format all amounts to dollars and cents (2 decimal places).
6. With instructor observing, insert a new column between April and Totals. Enter the data for May--New York 66100, Chicago 80500, Denver 47000, and Los Angeles 34000 (there will be no total for the month of May at this point). Fill in missing hyphens and doublescore in May column.

   ____ (teacher signature)
7. Enter a double underscore in all cells above spreadsheet title.
8. Save spreadsheet under title SALESR1 (meaning revision #1).
9. Print a copy and submit to instructor.

PERFORMANCE/PRODUCT CHECKLIST

A 7

Recall, Modify, and Print a Spreadsheet

CRITICAL ITEMS	ITEMS TO BE CHECKED OR OBSERVED	RATING YES/NO
* 1.	Was column label entered accurately and in correct cell?	___ ___
* 2.	Were both rows inserted as directed?	___ ___
* 3.	Was New York row moved to the correct alphabetic order?	___ ___
* 4.	Were all values entered accurately and in correct cells?	___ ___
* 5.	Were amounts formatted correctly?	___ ___
* 6.	Were columns widened as directed?	___ ___
* 7.	Did the student work alone?	___ ___
* 8.	Did student save spreadsheet under revised title?	___ ___
* 9.	Did student print out a copy as directed?	___ ___
*10.	Was the workstation powered down properly?	___ ___
*11.	Were all disks, software manuals, and other supplies returned to the proper place?	___ ___

TOTAL POINTS 11

POINTS NECESSARY 11

SCORE ______

INFORMATION PROCESSING

Area: Identify and Use Electronic Spreadsheets

Learner Outcome A 8: Design a Spreadsheet Containing Formulas

Purpose: On spreadsheets arithmetical operations can be performed automatically and instantly through the use of formulas. The time saved is one of the main reasons for using spreadsheets instead of calculators or manual calculation. In this component, you will learn how to use this important feature.

Objective: Given the appropriate software, software manual, and workstation, design spreadsheets containing formulas. To master this learner outcome, you must score 100% on a performance checklist and 11 out of 12 points, or 92% on a written exam.

Estimated Class Time: 6 hrs.

Learner Outcome A 8

Design a Spreadsheet Containing Formulas

LEARNING STEPS

READ:	Information Sheet A 8.1, "Design a Spreadsheet Containing Formulas," and software manuals on formulas.
COMPLETE:	Activity Sheet A 8.2, "Design a Spreadsheet Containing Formulas."
COMPLETE:	Activity Sheet A 8.3, "Design a Spreadsheet Containing Formulas."
READ:	Information Sheet A 8.4, "Replicate/Copy a Formula," and software manual on replication.
COMPLETE:	Activity Sheet A 8.5, "Replicate/Copy a Formula."
COMPLETE:	Activity Sheet A 8.6, "Replicating a Formula."
COMPLETE:	Performance/Product Checklist A 8, "Design a Spreadsheet Using Formulas."
COMPLETE:	Written Exam A 8, "Design a Spreadsheet Containing Formulas."

RESOURCES

A 8

Castlewhite, David M., Lawrence J. Chisausky, and Patricia Kronberg, VisiCalc: Home and Office Companion, McGraw-Hill, 1982.

Desautels, Edouard J., VisiCalc, William C. Brown Company, Publishers, 1982.

Fylstra, Dan, and Joyce Uggla, VisiCalc User's Guide, Personal Software Inc., 1982.

Mandell, Steven L., Introduction to Computers Using the Apple II, West Publishing Company, 1985.

Multiplan - Electronic Worksheet, Microsoft Corporation, 1983.

Wolff, Terris B., Microcomputer Applications: Using Small Systems Software, Boyd & Fraser Publishing Company, 1984.

Wolverton, Van, VisiCalc Guide, Software Arts, Inc., 1981.

EQUIPMENT/SOFTWARE MATERIALS NEEDED

Software program spreadsheets

Data diskette

Computer/printer

Software manual instructions for
    entering formulas
    replicating formulas

INFORMATION SHEET

A 8.1

Design a Spreadsheet Containing Formulas

The electronic spreadsheet contains many different features that enhance its operation and lessen the amount of the work that you are required to do.

An important feature is the ability of the spreadsheet application to perform arithmetic operations. Arithmetic operations are calculations that your microcomputer will do at your command.

The electronic spreadsheet will ADD, SUBTRACT, DIVIDE, MULTIPLY, and raise to the power of.

The symbols which are commonly used are:

Operator Symbol	Operation
+	addition
-	subtraction
/	division
*	multiplication
**	exponentiation

You should refer to your software manual for the symbols used by your application. Some applications may use a different symbol for some operations.

By inputting formulas into your electronic spreadsheet, it is possible to have your microcomputer perform the calculations for you. Let us now look at the spreadsheet that we prepared a few lessons earlier (REVEXP).

```
                 Sales             By            Month
-------------------------------------------------------------------
                   January     February     March          Total
-------------------------------------------------------------------
Revenue:
Sales                21000        24500       22250
Less: Returns          500          860         900
Net Sales

Expenses:
Advertising            900         1250        1300
Entertainment          575          400         750
Miscellaneous          675          870         750
Salary                4750         5600        6200
Utilities             3400         3400        3400
Total

Net Income
```

PERFORMANCE/PRODUCT CHECKLIST

A 7

Recall, Modify, and Print a Spreadsheet

(Instructor's key for SALESR1).

```
   A                B          C          D          E          F       G
=========================================================================
                 SALES                   BY                    MONTH
-------------------------------------------------------------------------
Profit Center       Jan        Feb        Mar        Apr        May    Total
-------------------------------------------------------------------------
Chicago         87900.00   83900.00   77050.00   94300.00   80500.00
Denver          12660.00   22590.00   44100.00   47900.00   47000.00
Los Angeles     33000.00   19800.00   32700.00   38600.00   34000.00
New York        65500.00   40100.00   55600.00   66000.00   66100.00
-------------------------------------------------------------------------
Totals         199060.00  166390.00  209450.00  246800.00
=========================================================================

              SALES
```

INFORMATION SHEET A 8.1 (continued)

The information contained on this existing spreadsheet consisted of "labels" and "numeric values." For each cell, you inputted data into the machine, locked in the entry (enter/return key), and the information appeared in the cell.

Sometimes our spreadsheet design calls for numbers or sets of numbers to be added, subtracted, multiplied or divided. The user then has two (2) options. You can manually perform the operation and key the answer in the proper cell.

The easiest and fastest method is to enter a formula and allow the microcomputer to perform the calculation.

A formula is an arithmetic statement telling the computer how to calculate an entry.

Look at this spreadsheet again on page 4. Notice that certain cells labeled Net Sales, Total and Net Income do not contain information. The reason for this is that the entry requires some type of calculation--a calculation that can be performed manually or automatically. In this task, you will learn how to input formulas that will direct the microcomputer to perform the arithmetic operations.

ACTIVITY SHEET

A 8.2

Design a Spreadsheet Containing Formulas

The purpose of this activity is to determine whether or not you have understood how to design a spreadsheet containing formulas.

STEP 1 Turn on power.

STEP 2 Insert proper disk(s).

STEP 3 Boot system.

STEP 4 Retrieve spreadsheet labeled REREV2.

STEP 5 Look at the labels contained in Column A. Notice that Sales minus Returns equals Net Sales. That means to calculate the amount of Net Sales, we must subtract the Returns from Sales.

Let us now concentrate our attention on cell B9. It should be empty of information. The reason is that B9 is the result of a calculation. To determine Net Sales, we must know what is contained in B7 and B8. To state it differently, B7 minus B8 equals B9. This refers back to what we discussed earlier:

Sales minus Returns equals Net Sales

We would then position the pointer at cell B9 and enter the following formula: +B7-B8. Complete this step now. The + indicates to the computer that you are not entering a label. If the + was not included, then the first character entered would be "B." This would indicate a LABEL. Therefore, we entered the + to direct the computer that a formula is being entered.

Once the formula has been keyed, we may lock in the formula by using the Enter/Return key. As soon as the formula is locked, the microcomputer will perform the calculation, and the ANSWER (not the formula) will appear in cell B9.

Note: The number in cell B9 should be 20500. If this answer does not appear, please rekey this step.

STEP 6 Move cell pointer to cell B18. Review the labels contained in Column A. The Total is the result of the addition of Advertising + Entertainment + Salary + Utilities + Miscellaneous. To obtain an answer in cell B18, we must key in a formula that will instruct the microcomputer to perform the necessary operation.

ACTIVITY SHEET A 8.2 (continued)

Key the following: @SUM(B12.B16). The @ symbol alerts the microcomputer that we are keying a FORMULA. The word SUM indicates that we desire ADDition. The parentheses indicates that all of the cells located within must be taken into consideration. The period inside the parentheses links all cells between B12 and B16. This includes B12, B13, B14, B15, and B16.

Do you remember how to lock in the formula? Yes, you press Enter/Return.

Good Work! Now lock in the formula and watch what appears in cell B18.

What number now appears in cell B18? ________________

STEP 7 Move your cell pointer to cell B20. Review the labels entered in Column A. Notice that Net Income is calculated by subtracting the TOTAL from NET SALES. In this example, we would need to subtract cell B18 from cell B9.

Key in the following: +B9-B18

Lock in the formula

What amount now appears in B20? ________________

STEP 8 Move your cell pointer to cell C9. Design, enter, and lock in a formula that will produce the desired results.

STEP 9 Move your cell pointer to cell C18. Design, enter, and lock in a formula that will produce the desired result.

STEP 10 Move your cell pointer to cell C20. Design, enter, and lock in a formula that will produce the desired result.

STEP 11 Design, enter, and lock in formulas that will produce the desired result for cells, D9, D18 and D20.

STEP 12 Save spreadsheet under the same title REREV2.

STEP 13 Print spreadsheet for teacher's inspection.

ACTIVITY SHEET A 8.2 (continued)

Observe the spreadsheet displayed on your monitor. Answer questions listed below.

1. What is the formula you entered to calculate Net Sales for March?

2. What is the formula you entered to calculate Total (expenses) for February?

3. What is the formula you entered to calculate Net Income for March?

4. What is the formula you entered to calculate the total (expenses) for April?

5. What is the total Net Income for April?

Activity Sheet Key

A 8.2

Design a Spreadsheet Containing Formulas

Observe the spreadsheet displayed on your monitor. Answer questions listed below.

1. What is the formula you entered to calculate Net Sales for March?

   +D7 - D8

2. What is the formula you entered to calculated Total (expenses) for February?

   @SUM(C12.C16)

3. What is the formula you entered to calculate Net Income for March?

   +D9-D18

4. What is the formula you entered to calculate Total (expenses) for April?

   @Sum(D12-D16)

5. What is the total Net Income for April?

   11705.80

Activity Sheet Key A 8.2 (continued)

(Teacher's key for REREV2).

```
                  Sales          By             Month
-------------------------------------------------------------------------------
                  January        February       March          April
-------------------------------------------------------------------------------

Revenue:
Sales             $21,000.00     $24,500.00     $22,250.00     $25,460.00
Less: Returns        $500.00        $860.00        $900.00        $840.00
Net Sales         $20,500.00     $23,640.00     $21,350.00     $24,620.00

Expenses:
Advertising          $900.00      $1,250.00      $1,300.00      $1,200.80
Entertainment        $575.00        $400.00        $750.00        $700.70
Salary             $4,750.00      $5,600.00      $6,200.00      $6,290.30
Utilities          $3,400.00      $3,400.00      $3,400.00      $3,973.20
Miscellaneous        $675.00        $870.00        $750.00        $750.00

Total             $10,300.00     $11,520.00     $12,400.00     $12,915.00

Net Income        $10,200.00     $12,120.00      $8,950.00     $11,705.00
===============================================================================
```

ACTIVITY SHEET

A 8.3

Design a Spreadsheet Containing Formulas

Using the information provided below, design, enter, and save a spreadsheet containing formulas. Leave one blank line after title and after column headings

PRODUCTION COST REPORT

Department	Production	Quality Control	Total
Categories:			
Labor	240400	23000	
Miscellaneous	10000	40000	
Utilities	6000	5000	
Overhead	12000	8000	
Totals			

Note: In cells where totals are indicated, you must design a formula for the calculation necessary to add across and down.

ACTIVITY SHEET

A 8.3

Design a Spreadsheet Containing Formulas

Observe the spreadsheet on your monitor. Answer the questions below.

1. What is the formula you entered to:

   a. total the production column ________________

   b. total the quality control column ____________

   c. total the labor row ________________________

   d. total the overhead row _____________________

   e. total the total column _____________________

Activity Sheet Key

A 8.3

Design a Spreadsheet Containing Formulas

Answers may vary. These are based on leaving one blank line below title and below column headings.

1a. @Sum(B7.B10)

1b. @Sum(C7.C10)

1c. +B7 +C7

1d. +B10 +C10

1e. @Sum (D7.D10)

ACTIVITY SHEET

A 8.5

Replicate/Copy a Formula

The purpose of this activity is to determine whether or not you understand the replicating/copying of a formula.

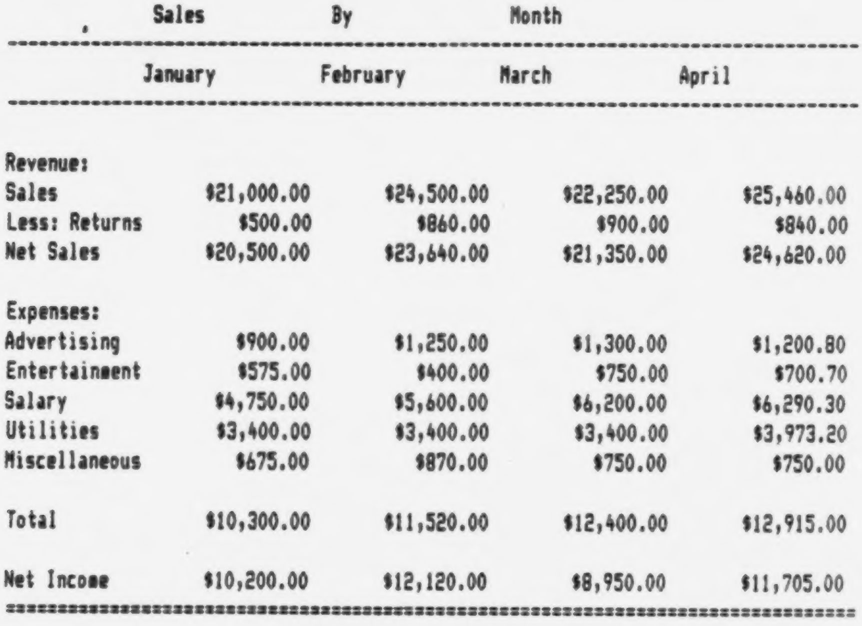
STEP 1 Turn on power.

STEP 2 Insert proper disk(s).

*Note: Refer to your software manual. Some software applications reverse these two steps.

STEP 3 Boot system.

STEP 4 Retrieve spreadsheet REREV2. The spreadsheet on your monitor should resemble the spreadsheet below.



Sales By Month

	January	February	March	April
Revenue:				
Sales	$21,000.00	$24,500.00	$22,250.00	$25,460.00
Less: Returns	$500.00	$860.00	$900.00	$840.00
Net Sales	$20,500.00	$23,640.00	$21,350.00	$24,620.00
Expenses:				
Advertising	$900.00	$1,250.00	$1,300.00	$1,200.80
Entertainment	$575.00	$400.00	$750.00	$700.70
Salary	$4,750.00	$5,600.00	$6,200.00	$6,290.30
Utilities	$3,400.00	$3,400.00	$3,400.00	$3,973.20
Miscellaneous	$675.00	$870.00	$750.00	$750.00
Total	$10,300.00	$11,520.00	$12,400.00	$12,915.00
Net Income	$10,200.00	$12,120.00	$8,950.00	$11,705.00

STEP 5 Enter Total in cell F3 and hypens in F2 and F4.

STEP 6 Move cell pointer to cell F7. The cell should be empty. The entry requires a calculation. It is easier to ask the microcomputer to perform the calculation.

January Sales + Feb Sales + March Sales + April Sales = Total

ACTIVITY SHEET A 8.5 (continued)

We could state this as: +B7 + C7 + D7 + E7 = F7. We can design an easier formula, however using the SUM shortcut.

*Teacher will need to modify cell coordinates and replicate procedure according to software used.

Key in the following formula: @SUM (B7.E7)

Enter the formula: Enter/Return key and an amount now appears in cell F7. This amount represents the total of the four (4) months.

What is this amount? ____________________

At this point we can either enter a formula for each total needed in Column E or we can use the REPLICATE command.

*STEP 7 Move the cell pointer to F7.

*STEP 8 Key in /. (or REPLICATE command for your software package)

*STEP 9 Key in R for REPLICATE.

*STEP 10 Depress Enter/Return key.

*STEP 11 Key in .

*STEP 12 Use the down arrow twice. This locks in the range of cells to be REPLICATED.

*STEP 13 Key in R for RELATIVE.

*STEP 14 Key in R for RELATIVE. Totals should now be displayed in cells F8 and F9.

*STEP 15 Move cell pointer to F9. Repeat steps 8 and 9.

*STEP 16 Move cell pointer to F11.

*STEP 17 Key in .

*STEP 18 Use down arrow until you are at Net Income line. This locks in the range of cells to be REPLICATED.

*STEP 19 Key in R for RELATIVE.

*STEP 20 Key in R for RELATIVE, and totals should now appear in all F cells with a label.

ACTIVITY SHEET A 8.5 (continued)

STEP 21 Save spreadsheet as REREV3.

STEP 22 Print for teacher inspection.

1. Write the formula to compute TOTAL SALES for the four months.

2. List the steps for replicating the Total Sales formula to total the other nine items.

3. Did you save the spreadsheet under the revised name?

*Steps 7 thru 20 will vary depending on software (these are steps for Visicalc.)

Answers will vary depending on your system. Your instructor will evaluate accordingly.

Activity Sheet Key

A 8.5

Replicate/Copy a Formula
(Teacher's Key)

Sales By Month

	January	February	March	April	Total
Revenue:					
Sales	$21,000.00	$24,500.00	$22,250.00	$25,460.00	$93,210.00
Less: Returns	$500.00	$860.00	$900.00	$840.00	$3,100.00
Net Sales	$20,500.00	$23,640.00	$21,350.00	$24,620.00	$90,110.00
Expenses:					
Advertising	$900.00	$1,250.00	$1,300.00	$1,200.80	$4,650.80
Entertainment	$575.00	$400.00	$750.00	$700.70	$2,425.70
Salary	$4,750.00	$5,600.00	$6,200.00	$6,290.30	$22,840.30
Utilities	$3,400.00	$3,400.00	$3,400.00	$3,973.20	$14,173.20
Miscellaneous	$675.00	$870.00	$750.00	$750.00	$3,045.00
Total	$10,300.00	$11,520.00	$12,400.00	$12,915.00	$47,135.00
Net Income	$10,200.00	$12,120.00	$8,950.00	$11,705.00	$42,975.00

1. Write formula to compute Total Sales for the four months @ B7.E7
2. List ______________________________
   *Varies with software package.
3. Did you save ______________________________

(Teacher has to view disk directory to determine if spreadsheet is now under new name)

INFORMATION SHEET

A 8.4

Replicate/Copy a Formula

In our last exercise we mastered the task of designing and entering a formula into an existing spreadsheet. After the formula was keyed, the microcomputer automatically performed the calculating required and entered the answer in the cell. This operation reduced the amount of work the operator was required to do and lessened the time of operation because of the speed of the microcomputer calculations.

Another feature of most software packages is the REPLICATE command. The REPLICATE command allows the user to copy the contents of any entry position, including labels, values (numbers, expressions, and formulas), and blank entries. You may copy a single entry from one place to another, copy a single entry position into a row or a column, or you may reproduce a single row or column as many times as you would like.

Please refer to your software manual for specific instructions on REPLICATING or COPYING a formula.

To use the REPLICATE command, you must supply two (and maybe three) sets of information:

1. the source range
2. the target range
3. indication of the relationship of value reference to the new position.

A range is defined as a single-entry position, a partial row or column, or an entire row or column. In most software packages, a range may not cross the sheet diagonally. Ranges are vertical or horizontal or both.

ACTIVITY SHEET

A 8.6

Replicating a Formula

Using the information provided below, design, enter, and save a spreadsheet containing formulas. Consult manual for formula to multiply. Leave one blank row after title and column headings.

Office Supplies Inventory

Item	Qty.	Cost	Total
Legal Pads	24	1.11	
Folders, Letter	250	.05	
Folders, Legal	127	.08	
Pens, blue	40	.32	
Pens, black	29	.30	
Pencils, #2	48	.07	
Total Value			

Note: In cells where totals are indicated, you must multiply Quantity by Cost to arrive at Inventory value. Use REPLICATE where possible. Do not total Quantity and Cost columns. Print out a copy as well as save file under name INVENTOR. Submit to instructor.

ACTIVITY SHEET A 8.6 (continued)

Answer the questions below.

1. Give the formula you entered to get the total value of the legal pads.

2. Give the steps to replicate the multiplication formula in the remainder of the Total Column (*will vary depending on software).

3. Are the totals omitted at the bottom of the Quantity and Cost columns but included on Total Column?

Answers will vary depending on your system. Your instructor will evaluate accordingly.

Activity Sheet Key

A 8.6

Replicating a Formula

Teacher's Key for spreadsheet INVENTOR.

```
          A                 B                 C               D
1   Office Supplies Inventory
2
3   Item                  Qty.               Cost            Total
4
5   Legal Pads              24               1.11            26.64
6   Folders, Letter        250               0.05            12.50
7   Folders, Legal         127               0.08            10.16
8   Pens, blue              40               0.32            12.80
9   Pens, black             29               0.30             8.70
10  Pencils, #2             48               0.07             3.36
11
12  Total Value
```

1. Give the formula you entered to get the total value of the legal pads.

   B5*C5

2. Give the steps to replicate the multiplication formula in the remainder of the TOTAL Column (*will vary depending on software.)

   will vary with software used

3. Are the totals omitted at the bottome of the Quantity and Cost Columns but included on Total Column?

   Yes

AREA: Identify and Use Electronic Spreadsheets

LEARNER OUTCOME: Design a Spreadsheet Using Formulas

LEARNER OUTCOME: A 8

PERFORMANCE/PRODUCT CHECKLIST

STUDENT ______________________________ PERFORMANCE ATTEMPT 1 2 3 4

EVALUATOR ______________________________ DATE ______________________

EVALUATION SITE ____________________

TERMINAL PERFORMANCE OBJECTIVE:

Given appropriate software packages, software evaluation forms, and pertinent data, design and modify two spreadsheets using formulas.

DIRECTIONS TO THE STUDENT:

Before attempting this performance for mastery, carefully review this checklist. You will be evaluated on the basis of this checklist. When you feel you are ready for evaluation, contact your instructor. You must complete your performance within 1 hour and must score 14 out of 14 points or 100% for mastery.

DIRECTIONS TO THE EVALUATOR:

The student will contact you when ready for evaluation. The student must complete the performance within 1 hour and must score 14 out of 14 points or 100% for mastery.

PERFORMANCE/PRODUCT CHECKLIST

A 8

Design a Spreadsheet Using Formulas

Part A

To evaluate your understanding of entering formulas and doing replication, retrieve an existing spreadsheet and follow directions below.

Instructions

1. Retrieve spreadsheet SALESR1.
2. With teacher observing,
    a. Enter formula to total May column.
    b. Enter formula to total Chicago row.
    c. Replicate Chicago formula to arrive at totals for all cities and grand total.
3. Save as SALESR2.
4. Print out for teacher inspection.
5. Continue with Part B.

PERFORMANCE/PRODUCT CHECKLIST A 8 (continued)

Part B

Create the following spreadsheet using formulas and replicate. Save and print for teacher evaluation. Be sure to use replicate to speed up calculation. See further instructions below.

OFFICE EQUIPMENT ORDER

QTY.	ITEM	UNIT	UNIT COST	TOTAL
12	PRINTER # 854	EA.	185.95	
12	PRINTER CARD	EA.	100.45	
6	PRINTER RIBBONS	DOZ.	40.65	
12	PRINTER STAND	EA.	137.45	
20	TYPEWRITER # 2000	EA.	322.65	
1	VIDEO RECORDER #8	EA.	279.35	
	TOTAL			

NOTE:

1. Be sure Unit Cost and Total Columns are formatted for two decimal places.
2. Put double underscores above title. Put row of hypens after title.
3. Multiply Quantity by Unit Cost column for each item.
4. Total the Total column.
5. Save as ORDER.

PERFORMANCE/PRODUCT CHECKLIST

A 8

Design a Spreadsheet Using Formulas

CRITICAL ITEMS	ITEMS TO BE OBSERVED OR CHECKED	RATING YES/NO
*1.	The student booted up without help?	___ ___
Part A		
*2.	The student retrieved required spreadsheet?	___ ___
*3.	The student entered proper formula to add May column?	___ ___
*4.	The student entered proper formula to add Chicago row?	___ ___
*5.	The student replicated formula in Chicago row to total all remaining rows?	___ ___
*6.	The student saved revised spreadsheet as SALESR2 and printed out hard copy?	___ ___
Part B		
7.	The student entered correct labels?	___ ___
8.	The student used replicate to repeat the double underscores?	___ ___
9.	The student entered correct values for quantity and unit cost?	___ ___
10.	The student entered formula to multiply quantity times Unit Cost for first time?	___ ___
11.	The student used replicate to repeat Total formula?	___ ___
12.	The student saved spreadsheet under ORDER?	___ ___
13.	The student printed copy of spreadsheet?	___ ___
14.	The student powered down and returned software to appropriate storage area?	___ ___

PERFORMANCE/PRODUCT CHECKLIST A 8 (continued)

TOTAL POINTS 14

POINTS NECESSARY 14

SCORE ______

Performance/Product Checklist Key

A 8

Design a Spreadsheet Using Formulas

SALESR2

```
==========================================================================
               SALES              BY                 MONTH
--------------------------------------------------------------------------
Profit Center        Jan        Feb        Mar        Apr        May      Total
--------------------------------------------------------------------------
Chicago         87900.00   83900.00   77050.00   94300.00   80500.00  423650.00
Denver          12660.00   22590.00   44100.00   47900.00   47000.00  174250.00
Los Angeles     33000.00   19800.00   32700.00   38600.00   34000.00  158100.00
New York        65500.00   40100.00   55600.00   66000.00   66100.00  293300.00
Totals         199060.00  166390.00  209450.00  246800.00  227600.00 1049300.00
==========================================================================
```

ORDER

Office Equipment Order

QTY	ITEM	UNIT	UNIT COST	TOTAL
12	PRINTER #854	EA.	185.95	2,331.40
12	PRINTER CARD	EA.	100.45	1,205.40
6	PRINTER RIBBONS	DOZ.	40.65	243.90
12	PRINTER STAND	EA.	137.45	1,649.40
20	TYPEWRITER #2000	EA.	322.65	6,453.00
1	VIDEO RECORDER #8	EA.	279.35	279.35
	TOTAL			12,162.45

WRITTEN EXAM

A 8

Design a Spreadsheet Containing Formulas

T F 1. On an electronic spreadsheet you can enter LABELS, NUMBERS, and FORMULAS in any cell.

T F 2. Most electronic spreadsheet software will perform the following operations: ADDITION, SUBTRACTION, DIVISION, and MULTIPLICATION.

T F 3. To enter a formula into the spreadsheet, you would use the space bar.

T F 4. When used at the beginning of a formula the + directs the microcomputer that a LABEL is about to be entered.*

T F 5. The REPLICATE command allows the user to copy the contents of any entry position to only one additional cell.

T F 6. Formulas may contain alphabetic characters.

T F 7. It is possible to enter a range diagonally across your spreadsheet.

T F 8. Columns are defined as horizontal blocks of space.

T F 9. Numeric (# value) entries may be replicated, but labels (alphabetic) cannot be replicated.

T F 10. The * is the symbol for multiplication on spreadsheets.

T F 11. The formula @SUM(B4..B10) will add the values from two cells together.*

T F 12. The formula +B15-B20 will cause the value in cell B20 to be subtracted from the value in B15.*

*Revise question for your software.

Written Exam Key

A 8

Design a Spreadsheet Containing Formulas

TRUE 1. On an electronic spreadsheet you can enter LABELS, NUMBERS, and FORMULAS in any cell.

TRUE 2. Most electronic spreadsheet software will perform the following operations: ADDITION, SUBTRACTION, DIVISION, and MULTIPLICATION.

FALSE 3. To enter a formula into the spreadsheet, you would use the space bar.

FALSE 4. When used at the beginning of a formula the + directs the microcomputer that a LABEL is about to be entered.*

FALSE 5. The REPLICATE command allows the user to copy the contents of any entry position to only one additional cell.

TRUE 6. Formulas may contain alphabetic characters.

FALSE 7. It is possible to enter a range diagonally across your spreadsheet.

FALSE 8. Columns are defined as horizontal blocks of space.

FALSE 9. Numeric (# value) entries may be replicated, but labels (alphabetic) cannot be replicated.

TRUE 10. The * is the symbol for multiplication on spreadsheets.

FALSE 11. The formula @SUM(B4..B10) will add the values from two cells together.*

TRUE 12. The formula +B15-B20 will cause the value in cell B20 to be subtracted from the value in B15.*

*Revise question for your software.

INFORMATION PROCESSING

Area: Identify and Use Electronic Spreadsheets

Learner Outcome A 9: Use Window and Title Options on a Spreadsheet

Purpose: Spreadsheets are usually bigger than the screen. The window feature allows for viewing of portions of a spreadsheet. The title lock feature allows for a constant point of reference.

Objective: Given the appropriate software manual, existing spreadsheet on a data diskette, and workstation, use window and title options on an existing spreadsheet. To master this learner outcome, you must score 100% on a performance checklist.

Estimated Class Time: 4 hrs.

Learner Outcome A 9

Use Window and Title Options on a Spreadsheet

LEARNING STEPS

READ:	Information Sheet A 9.1, "Freeze Labels While Scrolling Through a Large Spreadsheet."
OBSERVE:	Instructor-led demonstration of using the title option.
READ:	Software manual for title option commands.
COMPLETE:	Activity Sheet A 9.2, "Use Title/Label Option."
COMPLETE:	Activity Sheet A 9.3, "Use Title/Label Option."
READ:	Information Sheet A 9.4, "Use Window Option."
OBSERVE:	Instructor-led demonstration of using the window option.
READ:	Software manual for window option commands.
COMPLETE:	Activity Sheet A 9.5, "Use Window Option."
COMPLETE:	Activity Sheet A 9.6, "Use Window Option."
READ:	Performance/Performance Checklist A 9, "Use Window and Title Options on a Spreadsheet."
CONTACT:	Instructor for final evaluation using Performance/Product Checklist A 9, "Use Window and Title Options on a Spreadsheet."

WRITTEN EXAM

A 8

Design a Spreadsheet Containing Formulas

The purpose of this exam is to determine whether or not you have understood the information on designing a spreadsheet containing formulas.

Each of the statements is either true or false. If the answer is true, circle T. If the answer is false, circle F.

To master this exam, you must answer 11 out of 12 items correctly or 92%.

RESOURCES

A 9

Castlewhite, David M., Lawrence J. Chisausky, and Particia Kronberg, Visicalc: Home and Office Companion, McGraw-Hill, 1982.

Desautels, Edouard J., Visicalc, William C. Brown Company Publishers, 1982.

Fylstra, Dan, and Joyce Uggla, Visicalc User's Guide, Personal Software, Inc., 1982.

Gruschcow, Jack, The Visicalc Applications Book, Reston Publishing Company, 1983.

Lotus 1-2-3, Lotus Development Corporation.

Mandell, Steven L., Introduction to Computers Using the Apple II, West Publishing Company, 1985.

MultiPlan - Electronic Worksheet, Microsoft Corporation, 1983.

MultiPlan Training Guide, Wang Laboratories, Inc., 1983.

Petersohn, Henry H., Developing Computer Solutions for Your Business Problems, Prentice-Hall, Inc., 1982.

Wolff, Terris B., Microcomputer Applications: Using Small Systems Software, Boyd & Fraser Publishing Company, 1984.

Wolverton, Van, VisiCalc Guide, Software Arts, Inc., 1981.

EQUIPMENT/SOFTWARE NEEDED

Software program for DOS and spreadsheets

Computer

Data diskette with existing spreadsheets

Software manual instruction

INFORMATION SHEET

A 9.1

Freeze Labels While Scrolling Through a Large Spreadsheet

You will be able to "freeze" specified rows or columns along the top or left edge of the screen so that they are always visible.

When Do You Freeze Labels?

You freeze labels when you want some columns or rows to stay on the screen while the rest of the spreadsheet is allowed to scroll. These are usually column and/or row headings.

Titles are used most often for long rows and/or columns of similar data, where you want to retain the row and/or column headings while scrolling through the entire data area.

When you just want to be able to see two distant parts of the spreadsheet at the same time, the window option may be more appropriate. The window option will be discussed in the next information sheet.

In the spreadsheet below, notice that only the first six months of the year are shown on the screen.

```
            A               B         C         D         E         F         G
1                         SALES              BY                 MONTH
2    Profit Center          Jan       Feb       Mar       Apr       May      June
3    New York             65500     40100     55600     66000     80500     76500
4    Chicago              87900     83900     77050     94300     34500     87900
5    Denver               12660     22590     44100     47900     38100     12660
6    Los Angeles          33000     19800     32700     38600     25700     33000
7    Totals              199060    166390    209450    246800    178800    210060
```

In order to see the figures for the month of August, you would scroll over to the August column. Notice in the spreadsheet on the next page that you can see the August column, but you cannot see the column with the city names.

INFORMATION SHEET A 9.1 (continued)

```
           B         C         D         E         F         G         H         I
 1   SALES               BY                 MONTH
 2         Jan       Feb       Mar       Apr       May      June      July       Aug
 3       65500     40100     55600     66000     80500     76500     38100     69300
 4       87900     83900     77050     94300     34500     87900     77050     94300
 5       12660     22590     44100     47900     38100     12660     44100     47900
 6       33000     19800     32700     38600     25700     33000     32700     38600
 7      199060    166390    209450    246800    178800    210060    191950    250100
 8
 9
10
11
```

After locking/freezing the city name column (titles), you will be able to scroll over to the August column, as in the spreadsheet below.

In this way, you can see the figures for each of the cities for the month of August, with the city names on the screen for easy reference.

```
          A              D         E         F         G         H         I
1                   BY                 MONTH
2    Profit Center      Mar       Apr       May      June      July       Aug
3    New York         55600     66000     80500     76500     38100     69300
4    Chicago          77050     94300     34500     87900     77050     94300
5    Denver           44100     47900     38100     12660     44100     47900
6    Los Angeles      32700     38600     25700     33000     32700     38600
7    Totals          209450    246800    178800    210060    191950    250100
8
9
```

ACTIVITY SHEET

A 9.2

Use Title/Label Option

The purpose of this activity is to determine whether or not you understood how to use titles and labels.

1. Retrieve the spreadsheet named SALES (the original version used in Learner Outcome A 5).

2. Insert data for the months of May through December, including the names of the months and any necessary formatting and copying. You may use the figures shown below. Include a Total column.

	SALES	BY			MONTH							
Profit Center	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
New York	65500	40100	55600	66000	80500	76500	38100	69300	56300	82900	314500	56300
Chicago	87900	83900	77050	94300	34500	87900	77050	94300	34500	87900	77050	94300
Denver	12660	22590	44100	47900	38100	12660	44100	47900	38100	12660	44100	47900
Los Angeles	33000	19800	32700	38600	25700	33000	32700	38600	25700	33000	32700	38600
Totals	199060	166390	209450	246800								

3. Referring to your software manual, practice freezing the column with the city names and scrolling over to the months in the last part of the year (You should be able to see the city names while scrolling).

4. Save spreadsheet as SALESR3.

5. See checklist following to check your work.

Activity Sheet Key

A 9.2

Use Title/Label Option

SALES BY MONTH

Profit Center	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
New York	65500	40100	55600	66000	80500	76500	38100	69300	56300	82900	314500	56300	1001600
Chicago	87900	83900	77050	94300	34500	87900	77050	94300	34500	87900	77050	94300	930650
Denver	12660	22590	44100	47900	38100	12660	44100	47900	38100	12660	44100	47900	412770
Los Angeles	33000	19800	32700	38600	25700	33000	32700	38600	25700	33000	32700	38600	384100
Totals	199060	166390	209450	246800	178800	210060	191950	250100	154600	216460	468350	237100	2729120

ACTIVITY SHEET

A 9.2

Use Title/Label Option

Compare your spreadsheet preparation by answering the questions below.

Items to be Checked

		Yes	No
1.	Did you insert the names of the months to complete the year?	___	___
2.	After entering values for May through December, did you replicate from the formulas from May through December to arrive at column totals quickly?	___	___
3.	Did you use a formula to add January-December for the New York row?	___	___
4.	Did you replicate your New York formula to total other cities and get grand total of column?	___	___
5.	Did you "freeze" city names and scroll over to June, August, and other later months to see that city names remained stationary?	___	___
6.	Did you check all totals with instructor's answer sheet?	___	___

ACTIVITY SHEET

A 9.3

Use Title/Label Option

Step 1. Design the spreadsheet shown below, inserting the appropriate formulas for the totals and percentages.

Step 2. Enter your reasonable estimates regarding expenses, based on a $60,000 total income. Refer to your software manual to determine how one might calculate what percent your rent (and each other expense) is of your total expenses or what percent your rent (and other expenses) is of the total income.

Budget	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
Income Source	Amount												
Salary-Husband													
Salary-Wife													
Other Income													
Total Income													

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL	%expense	%in
EXPECTED EXPENDITURES															
Fixed															
Rent, Mort															
Insurance:															
Life															
Medical															
Auto															
Home/Renters															
Chg Acct															
Auto loan															
Other Loan															
Subtotal															
Variable															
Electric															
Nat'l Gas															
Water															
Phone															
Other Util.															
Food															
Gasoline															
Furniture															
Appliances															
Clothing/Care															
Medical Care															
Personal Needs															
Education															
Recreation															
Gifts/Donations															
Mag/Newspapers															
Subtotal															
Total Expenses															

ACTIVITY SHEET A 9.3 (continued)

Step 3. Refering to your software manual, practice freezing the column with the income labels and scrolling over to the months in the last part of the year. (Your screen should look like the spreadsheet pictured below. Of course, your cells will be filled with figures.)

```
           A            I        J        K        L        M       N
 1      BUDGET
 2                     AUG      SEP      OCT      NOV      DEC    TOTAL
 3   ------------------------------------------------------------------
 4   INCOME
 5       Source
 6   Salary-Husband
 7   Salary-Wife
 8   Other Income
 9   ------------------------------------------------------------------
10   Total Income
11   ==================================================================
                                                                60000
12                     AUG      SEP      OCT      NOV      DEC    TOTAL
13   ------------------------------------------------------------------
14   EXPECTED
15   EXPENDITURES
16       Fixed
17   Rent,Mort
```

Step 4. Practice freezing the total expense label and scrolling over to the total expense amount and % of expense amount. (Your screen should look like the spreadsheet pictured below.)

```
            A             L         M        N          O          P
 1       BUDGET
 2                       NOV       DEC     TOTAL    %Expenses  %Income
33   Phone
34   Other Util.
35   Food
36   Gasoline
37   Furniture
38   Appliances
39   Clothing/Care
40   Medical Care
41   Personal Needs
42   Education
43   Recreation
44   Gifts/Donations
45   Mag/Newspapers
46   ------------------------------------------------------------------
47   Subtotal
48   ------------------------------------------------------------------
49   Total Expenses
50   ==================================================================
```

ACTIVITY SHEET A 9.3 (continued)

Step 5. Save as BUDGET3; print out for teacher inspection.

```
   BUDGET
                    JAN    FEB    MAR    APR    MAY    JUN    JUL    AUG    SEP    OCT    NOV    DEC   TOTAL     %Expenses %Income
--------------------------------------------------------------------------------------------------------------------------------
INCOME
     Source      Amount
Salary-Husband
Salary-Wife
Other Income
--------------------------------------------------------------------------------------------------------------------------------
Total Income                                                                                             60000
================================================================================================================================
                    JAN    FEB    MAR    APR    MAY    JUN    JUL    AUG    SEP    OCT    NOV    DEC   TOTAL     %Expenses %Income
--------------------------------------------------------------------------------------------------------------------------------
EXPECTED
EXPENDITURES
      Fixed
Rent,Mort
   Insurance:                                  Your figures will be inserted.
Life
Medical
Auto
Home/Renters
Chg Acct
Auto Loan
Other Loan
--------------------------------------------------------------------------------------------------------------------------------
Subtotal
--------------------------------------------------------------------------------------------------------------------------------
    Variable
Electric
Nat'l Gas
Water
Phone
Other Util.
Food
Gasoline
Furniture
Appliances
Clothing/Care
Medical Care
Personal Needs
Education
Recreation
Gifts/Donations
Mag/Newspapers
--------------------------------------------------------------------------------------------------------------------------------
Subtotal
--------------------------------------------------------------------------------------------------------------------------------
Total Expenses
================================================================================================================================
```

ACTIVITY SHEET

A 9.5

Use Window Option

The purpose of this activity is to determine whether or not you understood how to use the window option.

1. Retrieve the spreadsheet saved in Activity Sheet A 9.2 (SALESR3).

   Your spreadsheet will look like the one pictured below.

```
              SALES            BY                 MONTH
Profit Center   Jan     Feb     Mar     Apr     May    June    July     Aug    Sept     Oct     Nov     Dec   Total
New York      65500   40100   55600   66000   80500   76500   38100   69300   56300   82900  314500   56300 1001600
Chicago       87900   83900   77050   94300   34500   87900   77050   94300   34500   87900   77050   94300  930650
Denver        12660   22590   44100   47900   38100   12660   44100   47900   38100   12660   44100   47900  412770
Los Angeles   33000   19800   32700   38600   25700   33000   32700   38600   25700   33000   32700   38600  384100
Totals       199060  166390  209450  246800  178800  210060  191950  250100  154600  216460  468350  237100 2729120
```

2. Use the window option to display the city names, the first part of the year, and the total column.

```
           A              B          J       K       L       M       N
1                     SALES   1
2   Profit Center       Jan 2     Sept     Oct     Nov     Dec   Total
3   New York          65500 3    56300   82900  314500   56300 1001600
4   Chicago           87900 4    34500   87900   77050   94300  930650
5   Denver            12660 5    38100   12660   44100   47900  412770
6   Los Angeles       33000 6    25700   33000   32700   38600  384100
7   Totals           199060 7   154600  216460  468350  237100 2729120
8                           8
9                           9
```

3. Practice changing the figures for the first part of the year and observe the totals changing automatically.

ACTIVITY SHEET A 9.5 (continued)

Your spreadsheet may look like the one pictured below--after changing the New York figure for January to 75500. Try changing other figures in various columns. See software manual to determine how to move from window to window.

```
            A             B         J       K       L       M       N
1                     SALES  1
2   Profit Center       Jan  2    Sept     Oct     Nov     Dec    Total
3   New York          75500  3   56300   82900  314500   56300  1011600
4   Chicago           87900  4   34500   87900   77050   94300   930650
5   Denver            12660  5   38100   12660   44100   47900   412770
6   Los Angeles       33000  6   25700   33000   32700   38600   384100
7   Totals           209060  7  154600  216460  468350  237100  2739120
8                            8
9                            9
10                          10
```

ACTIVITY SHEET

A 9.6

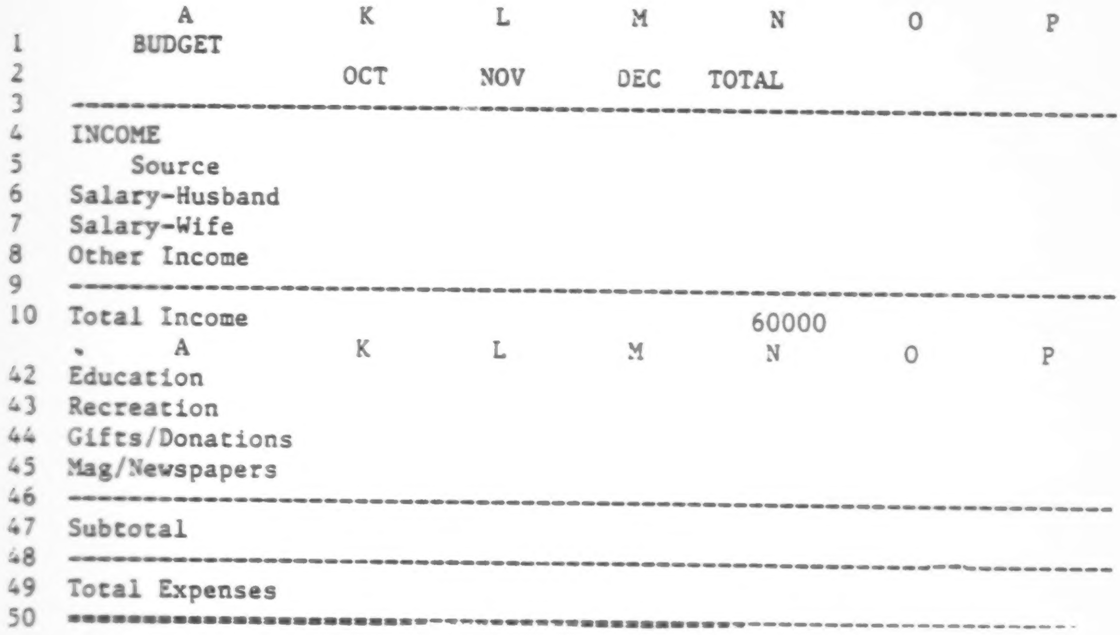
Use Window Option

The purpose of this activity is to determine whether or not you understood how to use the window option.

1. Retrieve the spreadsheet used in Activity Sheet A 9.3 (BUDGET3).

2. Use the window option to display the total income figures and the total expense figure(s).

   Your screen should look like the spreadsheet pictured below. Of course, your cells will be filled with figures.



```
          A             K          L          M          N          O          P
 1      BUDGET
 2                     OCT        NOV        DEC      TOTAL
 3   ------------------------------------------------------------------------------
 4   INCOME
 5      Source
 6   Salary-Husband
 7   Salary-Wife
 8   Other Income
 9   ------------------------------------------------------------------------------
10   Total Income                                        60000
          A             K          L          M          N          O          P
42   Education
43   Recreation
44   Gifts/Donations
45   Mag/Newspapers
46   ------------------------------------------------------------------------------
47   Subtotal
48   ------------------------------------------------------------------------------
49   Total Expenses
50   ==============================================================================
```

3. Practice changing figures in various months and watch your totals and percentages instantly change.

4. Save revised spreadsheet as Budget4 and print out for teacher viewing.

AREA: Identify and Use Electronic Spreadsheets

LEARNER OUTCOME: Use Window and Title Options on a Spreadsheet

LEARNER OUTCOME: A 9

PERFORMANCE/PRODUCT CHECKLIST

STUDENT ______________________________ PERFORMANCE ATTEMPT 1 2 3 4

EVALUATOR ____________________________ DATE ______________________

EVALUATION SITE __________________

TERMINAL PERFORMANCE OBJECTIVE:

Give appropriate software, software manual, and workstation, use window and title options on a spreadsheet.

DIRECTIONS TO THE STUDENT:

Before attempting this task for mastery, review carefully this checklist. You will be evaluated on the basis of this checklist. When you feel you are ready for evaluation, contact your instructor. You must complete your performance within 15 minutes and must score at least 7 out of 7 points or 100% for mastery. Critical items are marked with an asterisk (*). These items must be completed satisfactorily.

DIRECTIONS TO THE EVALUATOR:

The student will contact you when ready for evaluation. The student must complete the performance within 15 minutes and must score 7 out of 7 points or 100%, and all items marked with an asterisk (*) must be completed satisfactorily.

INFORMATION SHEET

A 9.4

Use Window Option

The window option controls what is sometimes called <u>split screen</u>: the division of the screen into two horizontal or vertical windows. Some spreadsheet programs may allow for more than two windows.

When to Use the Window Option

To see two distant parts of the screen at the same time, such as the spreadsheet pictured below, showing the first and last quarters of the year.

To enter data into one part of the worksheet while watching the effects on a different part of the worksheet. For instance, you could change the figures for one city for one month and watch the annual total change.

```
            A             B        C        D          K        L        M
41                                             41
42                    SALES           BY       42
43 ----------------------------------------43  ---------------------------
44 Profit Center     Jan      Feb      Mar  44     Oct      Nov      Dec
45 ----------------------------------------45  ---------------------------
46 New York         65500    40100    55600 46    82900   314500    56300
47 Chicago          87900    83900    77050 47    87900    77050    94300
48 Denver           12660    22590    44100 48    12660    44100    47900
49 Los Angeles      33000    19800    32700 49    33000    32700    38600
50 ----------------------------------------50  ---------------------------
51 Totals          199060   166390   209450 51   216460   468350   237100
52 ========================================52  ===========================
```

PERFORMANCE/PRODUCT CHECKLIST

A 9

Use Window and Title Options on a Spreadsheet

--Contact instructor when you are ready.
--Retrieve spreadsheet specified by instructor.
(It will be one of the two you used in this task--BUDGET3 or SALESR3).
--Use the titles and window options to display the parts of the spreadsheet as you did in your practice.

CRITICAL ITEMS	ITEMS TO BE OBSERVED OR CHECKED	RATING YES/NO
*1.	The student has retrieved the assigned spreadsheet?	___ ___
*2.	The student worked alone?	___ ___
*3.	When necessary, the student has obtained help if available?	___ ___
*4.	The student arranged the workstation properly?	___ ___
*5.	The student cleared the spreadsheet of any previously specified titles and window options?	___ ___
*6.	The student used the title option to display the parts of the spreadsheet as shown in Activity Sheet A 9.2 or 3?	___ ___
*7.	The student used the window option to display the parts of the spreadsheet as shown in Activity Sheet A 9.5 or 6?	___ ___
	TOTAL POINTS	7
	POINTS NEEDED	7
	SCORE	______

INFORMATION PROCESSING

Area: Identify and Use Electronic Spreadsheets

Learner Outcome A 10: Build a Supporting Spreadsheet

Purpose: Supporting spreadsheets provide the opportunity to display more detailed information than would otherwise be available with a single spreadsheet-i.e., accounts receivable, subsidiary ledger, payroll, individual salary reports, etc. This practice will help you learn to use this important function.

Objective: Given the appropriate software, software manual, and workstation, build a supporting spreadsheet. To master this learner outcome, you must score 12 out of 12 points or 100% on a performance checklist.

Estimated Class Time: 6 hrs.

Learner Outcome A 10

Build a Supporting Spreadsheet

LEARNING STEPS

READ:	Information Sheet A 10.1, "Build a Supporting Spreadsheet."
OBSERVE:	Teacher-led demonstration on building supporting spreadsheets.
READ:	Software Manual, "Building Supporting Spreadsheets."
COMPLETE:	Activity Sheet A 10.2, "Build a Supporting Spreadsheet."
COMPLETE:	Activity Sheet A 10.3, "Build a Supporting Spreadsheet."
COMPLETE:	Performance/Product Checklist A 10, "Build a Supporting Spreadsheet."

RESOURCES

A 10

Castlewhite, David M., Lawrence J. Chisausky, and Patricia Kronberg, VisiCalc: Home and Office Companion, McGraw-Hill, 1982.

Desautels, Edouard J., VisiCalc, William C. Brown Company, Publishers, 1982.

Fylstra, Dan, and Joyce Uggla, VisiCalc User's Guide, Personal Software, Inc., 1982.

Mandell, Steven L., Introduction to Computers Using the Apple II, West Publishing Company, 1985.

Multiplan - Electronic Worksheet, Microsoft Corporation, 1983.

Wolff, Terris B., Microcomputer Applications: Using Small Systems Software, Boyd & Fraser Publishing Company, 1984.

Wolverton, Van, VisiCalc Guide, Software Arts, Inc., 1981.

EQUIPMENT/MATERIALS/SOFTWARE NEEDED

Software program for DOS and spreadsheets

Computer and printer

Data diskette with existing spreadsheets used previously

Software manual instructions for
    using window option
    using title option

INFORMATION SHEET

A 10.1

Build a Supporting Spreadsheet

All of the information that has been entered up until now has been entered into a single spreadsheet. This permitted the user the opportunity to view all entries at a glance.

However, the quantity of numbers often becomes so large that the information presented becomes confusing. There is nothing worse than presenting so much information that the user loses track of the purpose of the report.

Let us look at a medium-sized company that accommodates approximately 250 accounts receivable. On a statement of financial condition, it would be impossible to list all 250 customers. It would certainly be easier to read and understand if only the total of the receivables was shown with an accompanying appendix detailing the customers and their outstanding balances.

Some software packages permit the user the opportunity to build supporting spreadsheets that are related. By "related" it is meant that there are figures in one spreadsheet that are dependent upon information contained in another.

Supporting spreadsheets supply data for other spreadsheets. Dependent spreadsheets receive data from other spreadsheets.

In our example, The Residual Company, the "Statement of Financial Condition" is the "dependent" spreadsheet. It is "dependent" because it relies on another spreadsheet for information.

The "Schedule of Accounts Receivable" is the "supporting" spreadsheet. It is "supporting" because it provides detailed information for another spreadsheet.

As values are changed in the "supporting" spreadsheet, the microcomputer automatically recalculates the summary total on the "dependent" spreadsheet.

INFORMATION SHEET A 10.1 (continued)

The data for that company would then relate as follows:

Summary Spreadsheet (Primary)

THE RESIDUAL COMPANY

STATEMENT OF FINANCIAL CONDITION	
ASSETS	
Cash	$ 25,000.00
Accounts Receivable	20,000.00
Merchandise Inventory	18,000.00
Furniture & Fixtures	125,000.00
TOTAL ASSETS	$ 188,000.00

Dependent Spreadsheet

THE RESIDUAL COMPANY

Detailed Spreadsheet

SCHEDULE OF ACCOUNTS RECEIVABLE	
Wilma Curry	$ 2,500.00
Jaci Harder	1,000.00
Tim Vanderwall	3,000.00
Emma Williamson	500.00
Captain Marvelinski	500.00
Janice Owens	1,000.00
Jan Robinson	1,500.00
Margery Kepka	2,000.00
Dorothy Brownstein	1,500.00
Michael Sailes	500.00
Lois Butler	3,000.00
Margery Pekar	3,000.00
TOTAL ACCOUNTS RECEIVABLE	$ 20,000.00

Supporting Spreadsheet

ACTIVITY SHEET

A 10.2

Build a Supporting Spreadsheet

The purpose of this activity sheet is to determine whether or not you understood how to build a supporting spreadsheet.

Write answer(s) on blank(s) provided. Consult your software manual and Information Sheet A 10.1 as needed.

---

1. What is a supporting spreadsheet?

   ____

2. What is a dependent spreadsheet?

   ____

3. What would make it advisable to use a supporting spreadsheet?

   ____

4. Name three applications where it would be advantageous to use a supporting spreadsheet.

(a) ____

(b) ____

(c) ____

5. List steps required to connect spreadsheets.

   ____

   ____

   ____

   ____

   ____

ACTIVITY SHEET A 10.2 (continued)

6. List steps required to dissolve connections between spreadsheets.

Activity Sheet Key

A 10.2

Build a Supporting Spreadsheet

Write answer(s) on blank(s) provided. Consult your software manual and Information Sheet A 10.1 as needed.

---

1. What is a supporting spreadsheet?

   spreadsheet that supplies data for another spreadsheet

2. What is a dependent spreadsheet?

   spreadsheet that receives data from another spreadsheet

3. What would make it advisable to use a supporting spreadsheet?

   It would be advisable to use a supporting spreadsheet when there is a large quantity of data.

4. Name three applications where it would be advantageous to use a supporting spreadsheet.

   a. income statements and attachments

   b. balance sheet and subsidiary ledgers

   c. payroll records

5. List steps required to connect spreadsheets.

   Answers will vary

6. List steps required to dissolve connections between spreadsheets.

   Answers will vary

AREA: Identify and Use Electronic Spreadsheets

LEARNER OUTCOME: Build a Supporting Spreadsheet

LEARNER OUTCOME: A 10

PERFORMANCE/PRODUCT CHECKLIST

STUDENT ______________________________ PERFORMANCE ATTEMPT 1 2 3 4

EVALUATOR ____________________________ DATE ______________________

EVALUATION SITE ____________________

TERMINAL PERFORMANCE OBJECTIVE:

Given the appropriate software, software manual, and workstation, build a supporting spreadsheet.

DIRECTIONS TO THE STUDENT:

Before attempting this performance for mastery, carefully review this checklist. You will be evaluated on the basis of this checklist. When you feel you are ready for evalaution, contact your instructor. You must complete your performance within _40_ minutes and must score at least _12_ out of _12_ points or _100%_. Critical items are marked with an asterisk (*). These items must be completed satisfactorily.

DIRECTIONS TO THE EVALUATOR:

The student will contact you when ready for evaluation. The student must complete the performance within 40 minutes and must score _12_ out of _12_ points or _100%_, and all items marked with an asterisk (*) must be completed satisfactorily.

PERFORMANCE/PRODUCT CHECKLIST

A 10

Build a Supporting Spreadsheet

CRITICAL ITEMS	ITEMS TO BE OBSERVED OR CHECKED	RATING YES/NO
* 1.	Turned on power?	___ ___
* 2.	Inserted disk(s)?	___ ___
* 3.	Booted system?	___ ___
* 4.	Were all column labels entered accurately?	___ ___
* 5.	Were all row labels entered accurately?	___ ___
* 6.	Were all values entered accurately?	___ ___
* 7.	Were all formulas entered correctly?	___ ___
* 8.	Was information keyed into two (2) separate spreadsheets?	___ ___
* 9.	Were spreadsheets "LINKED" correctly?	___ ___
*10.	Did instructor observe as link was dissolved?	___ ___
*11.	Did student work alone?	___ ___
*12.	Was microcomputer powered down correctly and all disks, manuals, and supplies returned to proper place?	___ ___

TOTAL POINTS 12

POINTS NEEDED 12

SCORE ______

PERFORMANCE/PRODUCT CHECKLIST

A 10

Build a Supporting Spreadsheet

Using the information that follows, build a supporting spreadsheet and a dependent spreadsheet and link the two. While the instructor observes, dissolve the link between the spreadsheets.

THE CARVER COMPANY
Income Statement
For the Month ended May 31, 1986

REVENUE:		
Sales		*
Cost of Merchandise Sold:		
Merchandise Inventory, May 1, 1986	$ 6,925.00	
Purchases	58,000.00	
Total Cost of Merchandise Available	64,925.00	
Less: Mdse. Inventory, May 31, 1986	7,200.00	
Cost of Merchandise Sold		
Gross Profit on Sales		
EXPENSES:		
Delivery Expense	1,800.00	
Insurance Expense	200.00	
Miscellaneous Expense	250.00	
Rent Expense	5,000.00	
Salary Expense	**	
Supplies Expense	3,200.00	
Total Expense		
Net Income		

PERFORMANCE/PRODUCT CHECKLIST A 10 (continued)

THE CARVER COMPANY

Payroll register for the month ended May 31, 1986

Employee Number	Employee Name	Salary
01	Brownstein, D.	950.00
02	Butler, L.	1,025.00
03	Torres, I.	1,500.00
04	Harder, J.	1,075.00
05	Kepka, M.	925.00
06	Marvelinski, C.	1,500.00
07	Owens, J.	1,050.00
08	Pekar, M.	1,200.00
09	Robinson, J.	1,175.00
10	Sailes, M.	1,025.00
11	Vanderwall, T.	1,300.00
12	Williamson, E.	1,275.00
Total Salary Expense		

*Enter formulas for each of these cells.
**Spreadsheets will be linked here.

ACTIVITY SHEET

A 10.3

Build a Supporting Spreadsheet

Refer to your software manual for capabilities and specific instructions for building supporting spreadsheets. Build a supporting spreadsheet and a dependent spreadsheet using the following information: Save spreadsheets on disk; print a copy of each; dissolve link between the two spreadsheets.

Name of Company: The Residual Company

Dependent Spreadsheet: Statement of Financial Condition

Supporting Spreadsheet: Furniture and Fixtures

(DEPENDENT SPREADSHEET)

Assets	
Cash	25,000.00
Accounts Receivable	20,000.00
Merchandise Inventory	18,000.00
Furniture and Fixtures	125,000.00*
Total Assets	188,000.00

(SUPPORTING SPREADSHEET)

Furniture and Fixtures	
Display Cases	52,000.00
Desks/Tables/Wardrobes	28,000.00
Bookcases	20,000.00
File Cabinets	17,000.00
Chairs	8,000.00
Total Furniture and Fixtures	125,000.00

*This is where spreadsheets will be linked.

Performance/Product Checklist Key

A 10

Build a Supporting Spreadsheet

THE CARVER COMPANY
Income Statement
For the Month ended May 31, 1986

REVENUE:		
Sales		$86,750.00
Cost of Merchandise Sold:		
Merchandise Inventory, May 1, 1986	$ 6,925.00	
Purchases	58,000.00	
Total Cost of Merchandise Available	64,925.00	
Less: Mdse. Inventory, May 31, 1986	7,200.00	
Cost of Merchandise Sold		$57,725.00
Gross Profit on Sales		29,025.00
EXPENSES:		
Delivery Expense	1,800.00	
Insurance Expense	200.00	
Miscellaneous Expense	250.00	
Rent Expense	5,000.00	
Salary Expense	**	
Supplies Expense	3,200.00	
Total Expense		$24,450.00
Net Income		4,575.00

Performance/Product Checklist A 10 (continued)

THE CARVER COMPANY

Payroll register for the month ended May 31, 1986

Employee Number	Employee Name	Salary
01	Brownstein, D.	950.00
02	Butler, L.	1,025.00
03	Curry, W.	1,500.00
04	Harder, J.	1,075.00
05	Kepka, M.	925.00
06	Marvelinski, C.	1,500.00
07	Owens, J.	1,050.00
08	Pekar, M.	1,200.00
09	Robinson, J.	1,175.00
10	Sailes, M.	1,025.00
11	Vanderwall, T.	1,300.00
12	Williamson, E.	1,275.00
Total Salary Expense		$14,000.00

INFORMATION PROCESSING

Area:	Identify and Use Electronic Spreadsheets
Learner Outcome A 11:	Combine Spreadsheets
Purpose:	Related information is often found in separate spreadsheets. The combine feature of electronic spreadsheets provides the opportunity to merge a number of existing spreadsheets (same format) into a summarized spreadsheet, rather than rekeying the related information, so that it can be used in one spreadsheet.
Objective:	Given the appropriate software, software manual, and workstation, build a supporting spreadsheet. To master this learner outcome, you must score 7 out of 7 points, or 100% on a performance checklist.

Estimated Class Time: 3 hrs.

Learner Outcome A 11

Combine Spreadsheets

LEARNING STEPS

READ:	Information Sheet A 11.1, "Combine Spreadsheets."
READ:	Appropriate software manual on combining spreadsheets.
COMPLETE:	Activity Sheet A 11.2, "Combine Spreadsheets."
COMPLETE:	Performance Checklist A 11, "Combine Spreadsheets."

RESOURCES

A 11

Castlewhite, David M., Lawrence J. Chisausky, and Patricia Kronberg, VisiCalc: Home and Office Companion, McGraw-Hill, 1982.

Desautels, Edouard J., VisiCalc, William C. Brown Company, Publishers, 1982.

Fylstra, Dan, and Joyce Uggla, VisiCalc User's Guide, Personal Software, Inc., 1982.

Mandell, Steven L., Introduction to Computers Using the Apple II, West Publishing Company, 1985.

Multiplan - Electronic Worksheet, Microsoft Corporation, 1983.

Wolff, Terris B., Microcomputer Applications: Using Small Systems Software, Boyd & Fraser Publishing Company, 1984.

Wolverton, Van, VisiCalc Guide, Software Arts, Inc., 1981.

EQUIPMENT/MATERIALS/SOFTWARE NEEDED

Software program for DOS and spreadsheets

Computer and printer

Data diskette with existing spreadsheets used previously

Software manual instructions for
    using window option
    using title option

INFORMATION SHEET

A 11.1

Combine Spreadsheets

Data used in one spreadsheet is often used in another spreadsheet. Copying all the information from one spreadsheet to another spreadsheet can be a tedious process. To eliminate this problem, spreadsheet programs usually allow ranges of data to be copied onto a second spreadsheet.

In this packet we are going to learn how to complete individual spreadsheets and combine them into a total spreadsheet. For example, four weekly expense reports could be combined into a monthly expense report. Three subsidiary manufacturing plants could combine their production reports to determine the total output for the three plants. To combine two spreadsheets, the columns and row arrangements must be identical.

Consult your manual before completing the activity sheet in order to determine how your applications program completes the task.

ACTIVITY SHEET

A 11.2

Combine Spreadsheets

The purpose of this activity is to determine whether or not you have understood how to combine spreadsheets.

In this activity we are going to combine the weekly production totals from three Pepsi Cola plants. When entering the spreadsheets, use 12 ounces for cans and 32 ounces for bottles in order to obtain the number of cans and bottles produced. (There are 64 ounces in a gallon.)

1. Obtain a storage diskette from your instructor.
2. Create a new (see page 6) spreadsheet using the information given in Exhibit A (Weekly Production Chicago.) Use the appropriate formulas in order to determine the number of ounces, percentage of cans, and percentage of bottles. Save as CHICAGO.
3. Copy the previous spreadsheet onto a second spreadsheet. Enter the information in Exhibit B (Springfield Production). Save as SPRGFLD.
4. Copy the same spreadsheet again onto a third spreadsheet. Enter the information from Exhibit C (Decatur Production). Save as DECATUR.
5. Combine the three spreadsheets into a total production spreadsheet, using the appropriate formulas.
6. Save the combined spreadsheet on your diskette as COMBINE.
7. Print the spreadsheets.
8. Check with your instructor to determine if you have the correct totals for the combined spreadsheet.

ACTIVITY SHEET A 11.2 (continued)

```
WEEKLY PRODUCTION CHICAGO
------------------------------------------------------------------
PRODUCT      GALS/HR  OUNCES   CANS #   BOTTLES #%CANS     %BOTTLES
------------------------------------------------------------------
PEPSI            275              1100      138
PEPSI-LITE       150               480      120
PEPSI-FREE       225               960       90
------------------------------------------------------------------
TOTALS
==================================================================
```

```
SPRINGFIELD
PRODUCT       GALS/HR   CANS # BOTTLES #
PEPSI              75      300        38
PEPSI-LITE         50      160        40
PEPSI-FREE        125      533        50
```

```
DECATUR
PRODUCT       GALS/HR   CANS # BOTTLES #
PEPSI              50      200        25
PEPSI-LITE        100      320        80
PEPSI-FREE         25      106        10
```

Activity Sheet Key

A 11.2

Combine Spreadsheets

```
WEEKLY PRODUCTION CHICAGO
--------------------------------------------------------------------
PRODUCT       GALS/HR   OUNCES    CANS # BOTTLES #    %CANS    %BOTTLES
--------------------------------------------------------------------
PEPSI             275    17600     1100       138      75%        25%
PEPSI-LITE        150     9600      480       120      60%        40%
PEPSI-FREE        225    14400      960        90      80%        20%
--------------------------------------------------------------------
TOTALS            650    41600     2540       348
====================================================================

WEEKLY PRODUCTION SPRINGFIELD
--------------------------------------------------------------------
PRODUCT       GALS/HR   OUNCES    CANS # BOTTLES #    %CANS    %BOTTLES
--------------------------------------------------------------------
PEPSI              75     4800      300        38      75%        25%
PEPSI-LITE         50     3200      160        40      60%        40%
PEPSI-FREE        125     8000      533        50      80%        20%
--------------------------------------------------------------------
TOTALS            250    16000      993       128
====================================================================

WEEKLY PRODUCTION DECATUR
--------------------------------------------------------------------
PRODUCT       GALS/HR   OUNCES    CANS # BOTTLES #    %CANS    %BOTTLES
--------------------------------------------------------------------
PEPSI              50     3200      200        25      75%        25%
PEPSI-LITE        100     6400      320        80      60%        40%
PEPSI-FREE         25     1600      106        10      80%        20%
--------------------------------------------------------------------
TOTALS            175    11200      626       115
====================================================================
```

Activity Sheet Key A 11.2 (continued)

```
WEEKLY PRODUCTION ILLINOIS
-----------------------------------------------------------------
PRODUCT      GALS/HR   OUNCES   CANS # BOTTLES #   %CANS %BOTTLES
-----------------------------------------------------------------
PEPSI            400    25600    1600      201       75%      25%
PEPSI-LITE       300    19200     960      240       60%      40%
PEPSI-FREE       375    24000    1599      150       80%      20%
-----------------------------------------------------------------
TOTALS          1075    68800    4159      591
=================================================================
```

```
WEEKLY PRODUCTION ILLINOIS
---------------------------------------------------------------------------------
PRODUCT            GALS/HR OUNCES              CANS #     BOTTLES #     %CANS  %BOTTLES
---------------------------------------------------------------------------------
PEPSI                  400 64*B5                 1600           201 +D5*12/C5 +E5*32/C5
PEPSI-LITE             300 64*B6                  960           240 +D6*12/C6 +E6*32/C6
PEPSI-FREE             375 64*B7                 1599           150 +D7*12/C7 +E7*32/C7
---------------------------------------------------------------------------------
TOTALS       @SUM(B5..B7) @SUM(C5..C7) @SUM(D5..D7) @SUM(E5..E7)
=================================================================================
```

AREA: Identify and Use Electronic Spreadsheet

LEARNER OUTCOME: Combine Spreadsheets

LEARNER OUTCOME: A 11

PERFORMANCE/PRODUCT CHECKLIST

STUDENT ______________________ PERFORMANCE ATTEMPT 1 2 3 4

EVALUATOR ______________________ DATE ______________________

EVALUATION SITE ______________________

TERMINAL PERFORMANCE OBJECTIVE:

Given appropriate software, manual, and workstation, combine spreadsheets.

DIRECTIONS TO THE STUDENT:

Before attempting this performance for mastery, carefully review this checklist. You will be evaluated on the basis of this checklist. When you feel you are ready for evaluation, contact your instructor. You must complete your performance within 2 hours and must score at least 7 out of 7 points, or 100% for mastery.

DIRECTIONS TO THE EVALUATOR:

The student will contact you when ready for evaluation. The student must complete the performance within 2 hours and score 7 out of 7 points, or 100% for mastery.

PERFORMANCE/PRODUCT CHECKLIST

A 11

Combine Spreadsheets

Prepare three spreadsheets analyzing the expenses for three different departments in a company. Total the expenses for each year and for each particular expense category (total expenses both horizontally and vertically). After this is completed, create a combined spreadsheet showing the TOTAL expenses for each year and for each expense category. (See pages 11 and 12.)

After the spreadsheets are completed, save and print them and turn them in to your instructor. You will be evaluated on these spreadsheets, using the following checklist.

PERFORMANCE/PRODUCT CHECKLIST A 11 (continued)

CRITICAL ITEMS	ITEMS TO BE OBSERVED OR CHECKED	RATING YES/NO
*1.	Student has completed spreadsheet "Production" correctly.	___ ___
*2.	Student has completed spreadsheet "Quality Control" correctly.	___ ___
*3.	Student has completed spreadsheet "Office" correctly.	___ ___
*4.	Student has combined the three spreadsheets correctly.	___ ___
*5.	Student has saved the four spreadsheets correctly.	___ ___
*6.	Student has cleaned up work station properly.	___ ___
*7.	Student has returned software manuals and program diskettes to their proper places.	___ ___

TOTAL POINTS 7

POINTS NEEDED 7

SCORE ______

Performance/Product Checklist Key A 11

Combine Spreadsheets

EXPENSE REPORT

Dept: Production	1983	1984	1985	TOTAL
Expense categories:				
Full time labor	325,000	343,000	305,000	973,000
Part time labor	25,000	23,000	31,000	79,000
Miscellaneous	3,500	4,300	6,100	13,900
Electricity	25,000	27,000	33,000	85,000
Heating	17,000	21,000	27,000	65,000
TOTAL	395,500	418,300	402,100	1,215,900

EXPENSE REPORT

Dept: Quality Control	1983	1984	1985	TOTAL
Expense categories:				
Full time labor	25,000	27,000	35,000	87,000
Part time labor	10,000	12,300	5,500	27,800
Miscellaneous	1,000	1,300	1,800	4,100
Electricity	3,000	3,500	4,300	10,800
Heating	7,000	9,000	11,000	27,000
	46,000	53,100	57,600	156,700

EXPENSE REPORT

Dept: Office	1983	1984	1985	TOTAL
Expense categories:				
Full time labor	33,000	37,000	39,000	109,000
Part time labor	5,500	7,500	8,900	21,900
Miscellaneous	2,500	3,300	5,500	11,300
Electricity	7,000	7,700	9,200	23,900
Heating	6,000	7,500	8,300	21,800
TOTAL	54,000	63,000	70,900	137,900

Performance/Product Checklist A 11 Key (continued)

EXPENSE REPORT SUMMARY

ALL DEPARTMENTS	1983	1984	1985	TOTAL
Expense categories:				
Full time labor	383,000	407,000	379,000	1,169,000
Part time labor	40,500	42,800	45,400	128,700
Miscellaneous	7,000	8,900	13,400	29,300
Electricity	35,000	38,200	46,500	119,700
Heating	30,000	37,500	46,300	113,800
TOTAL	495,500	534,400	530,600	1,560,500

INFORMATION PROCESSING

Area: Identify and Use Electronic Spreadsheets

Learner Outcome A 12: Evaluate Spreadsheet Software

Purpose: Because of the large quantity of software packages available in this area, it may be necessary to evaluate and choose software that best meets the needs of your company.

Objective: Given the appropriate packages, software evaluation forms, and pertinent data, evaluate software packages. To master this learner outcome, you must score 8 out of 8 points, or 100% on a performance/product checklist.

Estimated Class Time: 2 hrs.

Learner Outcome A 12

Evaluate Spreadsheet Software

LEARNING STEPS

READ: Information Sheet A 12.1, "Evaluate Spreadsheet Software."

READ: Three manuals on different spreadsheet software applications programs.

COMPLETE: Activity Sheet A 12.2, "Evaluate Spreadsheet Software."

COMPLETE: Software Check A 12.3, "Evaluate Spreadsheet Software."

COMPLETE: Software Check A 12.4, "Evaluate Spreadsheet Software."

COMPLETE: Performance/Product Checklist A 12, "Evaluation of Three Spreadsheet Software Packages." Contact your instructor.

RESOURCES

A 12

Castlewhite, David M., Lawrence J. Chisausky, and Patricia Kronberg, VisiCalc: Home and Office Companion, McGraw-Hill, 1982.

Desautels, Edouard J., VisiCalc, William C. Brown Company, Publishers, 1982.

Fylstra, Dan, and Joyce Uggla, VisiCalc User's Guide, Personal Software, Inc., 1982.

Mandell, Steven L., Introduction to Computers Using the Apple II, West Publishing Company, 1985.

Multiplan - Electronic Worksheet, Microsoft Corporation, 1983.

Wolff, Terris B., Microcomputer Applications: Using Small Systems Software, Boyd & Fraser Publishing Company, 1984.

Wolverton, Van, VisiCalc Guide, Software Arts, Inc., 1981.

EQUIPMENT/MATERIALS/SOFTWARE NEEDED

Software program for DOS and spreadsheets

Computer and printer

Data diskette with existing spreadsheets used previously

Software manual instructions for
    using window option
    using title option

INFORMATION SHEET

A 12.1

Evaluate Spreadsheet Software

Programs for computers are known as software. Spreadsheet programs as well as all computer software must be evaluated to see if it will meet user needs. The following criteria should be considered in selecting spreadsheet software programs:

1. Ease of Learning. The material should make it easy to learn how to edit, format, calculate, and perform other miscellaneous items. It is also important that the software manual that accompanies the applications program is easy to read.
2. Ease of Use. Once the material is learned, it is important to determine if it is easy to use. If it is difficult to complete editing, formatting, and calculations, one should look to other programs to see if they better suit his/her needs.
3. Performance. It is important to determine if your program is doing what you want it to do. One thing that should be determined is the ability of the function keys to perform scrolling, loading, saving, copying a column, copying and inserting a row, deleting a column or row, and erasing a block of cells. It is also important to consider the capacity of the spreadsheet.
4. Versatility. Is the program powerful enough to be able to complete applications beyond the simple spreadsheets? Things to remember are maximum rows, maximum columns, column width, formulas, and use of memory.
5. Cost. This is a major factor as a company decides if its budget will allow the cost.

Besides these mechanical features of the spreadsheet package, one should also think of memory requirements, transfer to hard disk ability, and demo disk availability.

Some spreadsheet programs you may want to compare are the following: Lotus 1-2-3, Supercalc, Visicalc, MultiPlan, PerfectCalc, and PFS Plan.

ACTIVITY SHEET

A 12.2

Evaluate Spreadsheet Software

The purpose of this activity is to determine whether or not you have understood how to evaluate spreadsheet software.

List three items to be considered in evaluating spreadsheet software:

1.

2.

3.

List three spreadsheet applications programs you plan to evaluate:

1.

2.

3.

Obtain the manuals and program diskettes for the above three programs. Read the manuals and work on the diskettes. Obtain assistance from your instructor if you have difficulty in obtaining the information. Use the guidelines on pages 5 and 6 to compare the three packages.

Be prepared to perform a product checklist for each of the above programs.

Activity Sheet Key

A 12.2

Evaluate Spreadsheet Software

List three items to be considered in evaluating software.

1. ease of learning
2. ease of use
3. performance
4. versatility
5. cost

Any three of the above are acceptable.

Any three spreadsheet applications programs are acceptable.

SOFTWARE CHECK

A 12.3

Evaluate Spreadsheet Software

Place a check in column to indicate YES.

	Software	Software	Software
1. Does the software have these features?			
a. sufficient rows & columns?			
b. full-screen directory?			
c. rename?			
d. delete files?			
e. merge (with other software)			
f. clear entire screen?			
g. add, subtract, multiply, divide, square root, percentage, average, sum?			
h. delete cell (range) contents?			
i. move cell (range) contents?			
j. split screen?			
k. manual & automatic recalculation?			
l. copy/replicate?			
m. sort data?			
n. left & right data alignment?			
o. center data in cells?			

SOFTWARE A 12.3 CHECK (continued)

p. choice of value formats (fixed, variable, date, $, etc.)?

q. format globally?			
r. format by column?			
s. format by rows?			
t. change column width globally individually			
u. print features change margins condense print sideways print headers print footers print borders print screens print values print formulas			

SOFTWARE CHECK

A 12.4

Evaluate Spreadsheet Software

Place a check in column to indicate a yes answer.

	Software	Software	Software
1. Will the software run on my make or model?			
2. Does the computer have enough memory for the software?			
3. Is the software compatible with my operating system (MSDOS, CPU)			
4. Is additional hardware required to run software such as circuit boards for graphics?			
5. Is software easy to use?			
6. Did you see a demonstration using this software for your tasks?			
7. Is the documentation clear?			
8. Is support available from the seller (vendor)?			

AREA: Identify and Use Electronic Spreadsheets

LEARNER OUTCOME: Evaluation of Three Spreadsheet Software Packages

LEARNER OUTCOME: A 12

PERFORMANCE/PRODUCT CHECKLIST

STUDENT ______________________________ PERFORMANCE ATTEMPT 1 2 3 4

EVALUATOR ____________________________ DATE ______________________

EVALUATION SITE ____________________

TERMINAL PERFORMANCE OBJECTIVE:

Given the appropriate software packages, software evaluation forms, and pertinent data, evaluate three software packages.

DIRECTIONS TO THE STUDENT:

Before attempting this performance for mastery, carefully review this checklist. You will be evaluated on the basis of this checklist. When you feel you are ready for evaluation, contact your instructor. You must complete your performance within 1 hour and must score 8 out of 8 points on each software package, or 100% for mastery.

DIRECTIONS TO THE EVALUATOR:

The student will contact you when ready for evaluation. The student must complete the performance within 1 hour and must score 8 out of 8 points on each software package, or 100% for mastery.

PERFORMANCE/PRODUCT CHECKLIST

A 12

Evaluation of Three Spreadsheet Software Packages

NAME OF PACKAGE: ______________________________

CRITICAL ITEMS	ITEMS TO BE OBSERVED OR CHECKED	RATING YES/NO
1.	Is spreadsheet package easy to learn?	___ ___
2.	Is spreadsheet package easy to use?	___ ___
3.	Does it perform function keys with ease?	___ ___
4.	Does the spreadsheet have a large capacity?	___ ___
5.	Is the spreadsheet package able to complete applications beyond the simple spreadsheet?	___ ___
6.	Is the package priced within the budget?	___ ___
7.	Is the spreadsheet package compatible with existing hardware?	___ ___
8.	Is a demo disk available for spreadsheet package?	___ ___

TOTAL POINTS ___8___

POINTS NEEDED ___8___

SCORE ______

PERFORMANCE/PRODUCT CHECKLIST

A 12

Evaluation of Three Spreadsheet Software Packages

NAME OF PACKAGE: ______________________________

CRITICAL ITEMS	ITEMS TO BE OBSERVED OR CHECKED	RATING YES/NO
1.	Is spreadsheet package easy to learn?	___ ___
2.	Is spreadsheet package easy to use?	___ ___
3.	Does it perform function keys with ease?	___ ___
4.	Does the spreadsheet have a large capacity?	___ ___
5.	Is the spreadsheet package able to complete applications beyond the simple spreadsheet?	___ ___
6.	Is the package priced within the budget?	___ ___
7.	Is the spreadsheet package compatible with existing hardware?	___ ___
8.	Is a demo disk available for spreadsheet package?	___ ___

TOTAL POINTS 8

POINTS NEEDED 8

SCORE ______

PERFORMANCE/PRODUCT CHECKLIST

A 12

Evaluation of Three Spreadsheet Software Packages

NAME OF PACKAGE: ______________________________

CRITICAL ITEMS	ITEMS TO BE OBSERVED OR CHECKED	RATING YES/NO
1.	Is spreadsheet package easy to learn?	___ ___
2.	Is spreadsheet package easy to use?	___ ___
3.	Does it perform function keys with ease?	___ ___
4.	Does the spreadsheet have a large capacity?	___ ___
5.	Is the spreadsheet package able to complete applications beyond the simple spreadsheet?	___ ___
6.	Is the package priced within the budget?	___ ___
7.	Is the spreadsheet package compatible with existing hardware?	___ ___
8.	Is a demo disk available for spreadsheet package?	___ ___

TOTAL POINTS	8
POINTS NEEDED	8
SCORE	______

Identify and Use Electronic Spreadsheets

A 13

Glossary

BACKUP	a DOS command to copy all files from one diskette to another diskette or a process of copying files
BLOCK	a rectangular portion of a spreadsheet
CATALOG	see directory
CELL POINTER	highlighted indicator that designates location of current work area
CELL	that point at which a column and a row intersect
CHARACTER	a unit of information such as a letter, digit, punctuation mark
COLUMNS	a line of vertical information
COMMAND	instruction given to the computer for execution; e.g., DIR
COMMAND LINE	gives available choices such as format, copy, move, etc.
COORDINATE	identify the point at which columns and rows meet
COPY	copying one or more files from one disk to another
DEPENDENT SPREADSHEET	relies on another spreadsheet for information
DIRECTORY (Catalog)	program which lists the names of files that are contained on a diskette
DISK DRIVES	peripheral devices that read information from a diskette, transfer it into the computer, and write information from the computer memory onto a diskette
DOS	Disk Operating System
ELECTRONIC SPREADSHEET	a grid of rows and columns where text, numbers, and formulas can be stored; created with the aid of a computer
FILES	sets of data and programs saved on a diskette

Identify and Use Electronic Spreadsheets A 13 (continued)

FORMULAS	arithmetic statements that tell the computer how to calculate an entry
FREEZE	software command that permits the user to lock in titles
FUNCTION KEYS	special keys created by the applications program to represent a particular command
HARD COPY	printed copy
INSERT	software command used to add a character, column, or a row
LABELS	headings or titles used to describe data on a spreadsheet
LOAD	entering a file into the memory of the computer
NUMBERS	numeric entries or values on a spreadsheet
PERIPHERAL	exterior devices that are connected to a computer such as a printer or a disk drive
RANGE	a group of cells
RENAME	save a file on a diskette under a new name
ROWS	a line of horizontal information
SAVE	to store a file taken from the computer's memory on to a diskette
SCROLL	a method of viewing sections of the documents that are not currently in view; scrolling the text can be either horizontal or vertical
SOFTWARE APPLICATIONS PROGRAM	a program that uses the resources and capabilities of the computer for some specific task; i.e., word processing, database management, graphics, spreadsheet management, or telecommunications
SPREADSHEET	data arranged in rows and columns for ease in performing calculations often used for budgeting and forecasting
STORAGE	data diskettes, used to store data processed by the computer
SUPPORTING SPREADSHEET	spreadsheets that supply data for another spreadsheet

Identify and Use Electronic Spreadsheets A 13 (continued)

VALUES	numbers that may be used in calculations or formulas
WORKSHEET	another name for spreadsheet

PERFORM RECORDS MANAGEMENT DUTIES

PERFORM RECORDS MANAGEMENT DUTIES

Learner Outcome	
B 1	Define the Five Steps of Filing--Inspecting, Indexing, Coding, Sorting, and Storing Business Documents
B 2	Identify the Rules and Procedures to Establish and Maintain Alphabetic, Numeric, Geographic, and Subject Systems
B 3	Identify the Procedures to Use a Cross Reference System
B 4	Identify the Procedures to Retrieve Information From the Files and Develop a Charge-out Reference System
B 5	Identify the Procedures to Locate Misfiles and to Use Filing Supplies and Equipment Correctly
B 6	Explore Micrographics
B 7	Glossary

RECORDS MANAGEMENT

PREFACE

Most companies have some form of electronic data base management system. However, even when most records are handled electronically, there is still some manual filing of records. Because of this, it is important that the records management clerk have a knowledge of basic filing rules and procedures. By having this basic knowledge, she/he can take care of any manual filing as well as understand how the data is handled electronically.

Also, a records management clerk may be called upon to assist in converting records from a manual to an electronic system. Without sufficient knowledge of both areas, it would be difficult to assist in making the transition from manual to electronic recordkeeping. It is also important to be aware of manual procedures to determine when and what records should be microfilmed for retention purposes.

All in all, to be adequately trained in records management, one must have a knowledge of both manual and electronic filing procedures.

INFORMATION PROCESSING

Area: Perform Records Management Duties

Learner Outcome B 1: Define the Five Steps of Filing--Inspecting, Indexing, Coding, Sorting, and Storing Business Documents

Purpose: As a worker in the modern office, one should be able to complete the five steps of filing--inspecting, indexing, coding, sorting, and storing. This guide will introduce you to these important skills.

Objective: Given a written exam, you must define the five steps of filing items correctly. To master this learner outcome, you must answer 9 out of 10, or 90% on a written exam.

Estimated Class Time: 3 hrs.

Learner Outcome B 1

Define the Five Steps of Filing--Inspecting, Indexing, Coding, Sorting, and Storing Business Documents

LEARNING STEPS

READ: Information Sheet B 1.1, "The Five Steps of Filing."

READ: One or more of the resources on the five steps of filing.

COMPLETE: Activity Sheet B 1.2, "The Five Steps of Filing."

COMPLETE: Performance/Product Checklist B 1, "The Five Steps of Filing."

COMPLETE: Written Exam B 1, "The Five Steps of Filing." Contact your instructor.

RESOURCES

B 1

"ARMA Standards Program Job Description Guideline," Records Management Quarterly, October 1983, pp. 42-26, 47-50, 52.

Association of Records Managers and Administrators, Inc., Technical Publications Price List, Prairie Village, Kansas.

Bauer, Dennis, Records Management Projects, Reston Publishing Company, Inc., Reston, VA., 1982.

Diamond, Susan Z., Records Management, A Practical Guide, American Management Association, Amacom Book Division, New York, NY 1983.

Fosegan, Joseph S., Alphabetic Indexing Rules, Application by Computer, Cincinatti, Ohio, Southwestern Publishing Co., 1984.

Giglio, Louis, "Optical Storage Cuts Out Paper," Information Week, ACMP Publication, July 1, 1985.

Gill, Suzanne L., File Management and Information Retrieval Systems, Littleton CO., Libraries Unlimited, 1981.

Maedke, Wilmer O., "What Is Records Management All About?," Business Eduction Forum, April-May, 1984, pp. 21-22.

Stewart, Jeffery, and Gilbert Kahn, Gregg Quick Filing Practice, New York: Gregg Division/McGraw Hill Book Co, 1979.

Stewart, Jeffery R., Judith A. Scharle, Judith A Hickey, and Gilbert Kahn, Filing Systems and Records Management, New York, Gregg Division/McGraw Hill Book Co, 1981.

Thomas, Schubert and Lee Thomas, Records Management Systems and Administration, New York: John Wiley & Sons, 1983.

Wallace, Patricia E, Records Management Application, New York, John Wiley & Sons, 1983.

INFORMATION SHEET

B 1.1

The Five Steps of Filing

Once correspondence has been released, there are five filing steps through which this document must be processed. These five steps should be done in the following order: inspecting, indexing, coding, sorting, and storing. This information sheet discusses the five processes.

INSPECTING

Inspecting, the first step in the filing process, involves the checking of a document to make sure that the document has been released for filing. Generally, the person releasing the document puts his/her initials and a date in the same place; these marks are called "the release marks." If the document has not been released properly, the document should be returned to the person in charge of releasing the document.

If correspondence goes directly to the Records Center, the clerk should stamp the correspondence with the name of the company plus the current date. While the clerk has the envelope in which the document arrived, the clerk should check to see that there are no enclosures.

INDEXING

Indexing is the mental process that involves deciding if the correspondence should be placed under a name, subject, geographic location, or other caption to be filed. You then decide the proper order of the information. A caption or heading is a name, letter, or number that identifies the information for filing. The records manager may check for the following clues to decide on the captions: the information on the letterhead, the name of the person or company in the inside address, the name within the signature, the information discussed in the subject or the information in the geographic area concerning the correspondence.

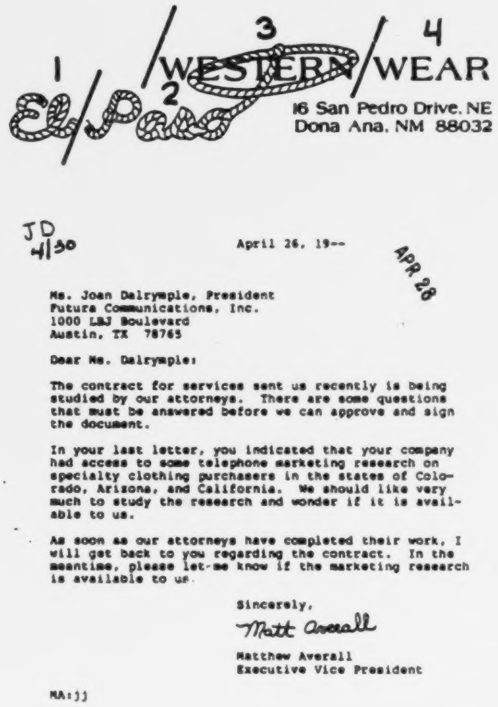
CODING

Coding is the writing or marking of a caption, such as a name or number, on a particular correspondence. The alphabetic systems may code by underlining the caption or by writing the caption in the upper right-hand corner if the caption information does not appear anywhere on the correspondence.

INFORMATION SHEET B 1.1 (continued)

Color coding is being used more often. Besides brightening the office environment, color coding reduces the number of misfiles. Some offices use different color folders for all information for a particular year, all information for a particular department, and all information for a particular number system. One disadvantage of color coding is that the color file folders are more expensive.

Study the following sample document ready for filing.



1 El/2 Paso/3 WESTERN/4 WEAR
16 San Pedro Drive, NE
Dona Ana, NM 88032

JD
4/30

April 26, 19--

APR 28

Ms. Joan Dalrymple, President
Futura Communications, Inc.
1000 LBJ Boulevard
Austin, TX 78765

Dear Ms. Dalrymple:

The contract for services sent us recently is being studied by our attorneys. There are some questions that must be answered before we can approve and sign the document.

In your last letter, you indicated that your company had access to some telephone marketing research on specialty clothing purchasers in the states of Colorado, Arizona, and California. We should like very much to study the research and wonder if it is available to us.

As soon as our attorneys have completed their work, I will get back to you regarding the contract. In the meantime, please let-me know if the marketing research is available to us.

Sincerely,

Matt Averall

Matthew Averall
Executive Vice President

MA:jj

SORTING

Sorting is the process of arranging the document in sequential order before filing. Commercial sorters are available and helpful to break the alphabet or numbers into smaller groups of information. Each Records Management Center decides the appropriate breakdown of information.

STORING

Storing is another name for filing and involves putting the documents in their proper drawers or cabinets. To save time in storing documents, time must be taken to sort the documents. Task B 4 will further explain refiling or storing documents after retrieving and charging out the documents.

ACTIVITY SHEET

B 1.2

The Five Steps of Filing

The purpose of this activity is to determine whether or not you have understood the information on the five steps of filing.

Each of the statements is either true or false. Please indicate your choice on your ANSWER SHEET.

T F 1. Question marks are used to let records management personnel know that a document has been released for filing.

T F 2. Information going directly to the Records Center must be stamped with the proper information by the clerk.

T F 3. The five filing steps include inspecting, indexing, coding, sorting, and storing.

T F 4. If a document has not been released properly, the document should be returned to the person in charge of releasing the document.

T F 5. Color coding is an out-of-date practice.

T F 6. Coding is done only by writing the caption in the upper right-hand corner of the document.

T F 7. Color coding does not reduce the number of misfiles.

T F 8. Generally, a document is released by using the initials of the releaser and the date.

T F 9. Sorting is another name for the word filing.

T F 10. The sorting process should be done before the storing process.

T F 11. The breakdown of information is decided by the personnel in a Records Management Center.

T F 12. Commercial sorters are not helpful in the sorting process.

T F 13. Storing is the process of putting documents into the appropriate drawers.

Activity Sheet Key

B 1.2

The Five Steps of Filing

FALSE 1. Question marks are used to let records management personnel know that a document has been released for filing.

TRUE 2. Information going directly to the Records Center must be stamped with the proper information by the clerk.

TRUE 3. The five filing steps include inspecting, indexing, coding, sorting, and storing.

TRUE 4. If a document has not been released properly, the document should be returned to the person in charge of releasing the document.

FALSE 5. Color coding is an out-of-date practice.

FALSE 6. Coding is done only by writing the caption in the upper right-hand corner of the document.

FALSE 7. Color coding does not reduce the number of misfiles.

TRUE 8. Generally, a document is released by using the initials of the releaser and the date.

FALSE 9. Sorting is another name for the word filing.

TRUE 10. The sorting process should be done before the storing process.

TRUE 11. The breakdown of information is decided by the personnel in a Records Management Center.

FALSE 12. Commercial sorters are not helpful in the sorting process.

TRUE 13. Storing is the process of putting documents into the appropriate drawers.

AREA:	Perform Records Management Duties
LEARNER OUTCOME:	Define the Five Steps of Filing--Inspecting, Indexing, Coding, Sorting, and Storing Business Documents
LEARNER OUTCOME:	B 1

PERFORMANCE/PRODUCT CHECKLIST

STUDENT ______________________________ PERFORMANCE ATTEMPT 1 2 3 4

EVALUATOR ______________________________ DATE ______________________

EVALUATION SITE ____________________

TERMINAL PERFORMANCE OBJECTIVE:

Given a checklist, one must identify and define The Five Steps of Filing--inspecting, indexing, coding, sorting, and storing business documents.

DIRECTIONS TO THE STUDENT:

Before attempting this task for mastery, carefully review this checklist. When you feel you are ready for evaluation, contact your instructor. You must answer 2 out of 2 items correctly or 100% on the checklist.

DIRECTIONS TO THE EVALUATOR:

The student will contact you when ready for evaluation. The student must complete this performance within 10 minutes and must score 2 out of 2 points on the checklist or 100% for mastery.

PERFORMANCE/PRODUCT CHECKLIST

B 1

The Five Steps of Filing

CRITICAL ITEMS	ITEMS TO BE CHECKED OR OBSERVED	RATING YES/NO
*1.	Can you define the five steps of filing?	___ ___
*2.	Did you successfully complete the activity sheet B 1.2 on the five steps of filing?	___ ___

TOTAL POINTS 10

POINTS NECESSARY 9

SCORE ______

WRITTEN EXAM

B 1

The Five Steps of Filing

The purpose of this activity is to determine whether or not you have understood the information on the five steps of filing.

Each of the questions or incomplete statements is followed by several words or phrases. Choose the one that best answers the question, or completes the statement correctly. Place the letter associated with that choice (A, B, C, or D) in the numbered blank space on your ANSWER SHEET. To master this exam, you must answer 9 out of 10 items correctly, or 90%.

WRITTEN EXAM

B 1

The Five Steps of Filing

1. The five steps of filing and their proper sequence are as following

   A. inspecting, sorting, indexing, coding, and storing
   B. inspecting, indexing, storing, coding, and sorting
   C. inspecting, indexing, coding, sorting, and storing
   D. inspecting, storing, indexing, coding, and sorting

2. Storing is another name for

   A. filing
   B. coding
   C. writing
   D. processing

3. A document is generally released by

   A. using the initials of the releaser
   B. using the date
   C. using the initials of the releaser and the date
   D. using neither the initials of the releaser nor the date

4. The sorting process should be done

   A. after the storing process
   B. before the storing process
   C. after the indexing process
   D. before the indexing process

5. One disadvantage of color coding is

   A. it may not be used in an alphabetic system
   B. it may not be used to separate departments
   C. it reduces misfiles
   D. it is more costly

6. Inspecting

   A. involves the checking of a document to make sure that the document has been released for filing
   B. is the writing or marking of a caption on a particular correspondence
   C. is the process of arranging the documents in sequential order
   D. is another name for filing

WRITTEN EXAM B 1 (continued)

7. Sorting

A. involves the checking of a document to make sure that the document has been released for filing
B. is the writing or marking of a caption on a particular correspondence
C. is the process or arranging the documents in sequential order
D. is another name for filing

8. Coding

A. involves the checking of a document to make sure that the document has been released for filing
B. is the writing or marking of a caption on a particular correspondence
C. is the process of arranging the documents in sequential order
D. is another name for filing

9. A caption is

A. a heading
B. an ending
C. a letter
D. a record

10. If a document has not been released properly, the records clerk should

A. forget it
B. return the document to the person in charge of releasing the document
C. stamp the document
D. return the document to the person in charge of records management

Written Exam Key

B 1

The Five Steps of Filing

1. The five steps of filing and their proper sequence are as following

   C. inspecting, indexing, coding, sorting, and storing

2. Storing is another name for

   A. filing

3. A document is generally released by

   C. using the initials of the releaser and the date

4. The sorting process should be done

   B. before the storing process

5. One disadvantage of color coding is

   D. it is more costly

6. Inspecting

   A. involves the checking of a document to make sure that the document has been released for filing

7. Sorting

   C. is the process or arranging the documents in sequential order

8. Coding

   B. is the writing or marking of a caption on a particular correspondence

9. A caption is

   A. a heading

10. If a document has not been released properly, the records clerk should

    B. return the document to the person in charge of releasing the document

INFORMATION PROCESSING

Area: Perform Records Management Duties

Learner Outcome B 2: Identify the Rules and Procedures to Establish and Maintain Alphabetic, Numeric, Geographic, and Subject Systems

Purpose: As a worker in the modern office, you must have the knowledge and skills to be able to establish and maintain the following: alphabetic system, numeric system, geographic system, subject system.

Objective: Given a written exam, you must identify the rules and procedures to establish and maintain alphabetic, numeric, geographic and subject files. To master this learner outcome, you must answer 13 out of 15 items correctly, or 87% on a written exam.

Estimated Class Time: 15 hrs.

Learner Outcome B 2

Identify the Rules and Procedures to Establish and Maintain Alphabetic, Numeric, Geographic, and Subject Filing Systems

LEARNING STEPS

READ: Information Sheet B 2.1, "Establish and Maintain an Alphabetic Filing System."

READ: One or more of the resources on establishing and maintaining files.

COMPLETE: Activity Sheet B 2.2, "Alphabetic Filing Systems."

COMPLETE: Activity Sheet B 2.3, "Alphabetic Filing Systems." See your instructor for the activity.

READ: Information Sheet B 2.4, "Establishing and Maintaining Numeric, Geographic, and Subject Systems."

READ: One or more of the resources on establishing and maintaining files.

COMPLETE: Activity Sheet B 2.5, "Numeric, Geographic, and Subject Filing Systems."

COMPLETE: Activity Sheet B 2.6, "Numeric, Geographic, and Subject Filing Systems."

COMPLETE: Performance/Product Checklist B 2, "Alphabetic, Numeric, Geographic, and Subject Filing Systems."

COMPLETE: Written Exam B 2, "Alphabetic, Numeric, Geographic, and Subject Filing Systems."

RESOURCES

B 2

"ARMA Standards Program Job Description Guideline," Records Management Quarterly, October 1983, pp. 42-26, 47-50, 52.

Association of Records Managers and Administrators, Inc., Technical Publications Price List, Prairie Village, Kansas.

Bauer, Dennis, Records Management Projects, Reston Publishing Company, Inc., Reston, VA., 1982.

Diamond, Susan Z., Records Management, A Practical Guide, American Management Association, Amacom Book Division, New York, NY 1983.

Fosegan, Joseph S., Alphabetic Indexing Rules, Application by Computer, Cincinatti, Ohio, Southwestern Publishing Co., 1984.

Giglio, Louis, "Optical Storage Cuts Out Paper," Information Week, ACMP Publication, July 1, 1985.

Gill, Suzanne L., File Management and Information Retrieval Systems, Littleton Co., Libraries Unlimited, 1981.

Maedke, Wilmer O., "What Is Records Management All About?," Business Eduction Forum, April-May, 1984, pp. 21-22.

Stewart, Jeffery, and Gilbert Kahn, Gregg Quick Filing Practice, New York: Gregg Division/McGraw Hill Book Co, 1979.

Stewart, Jeffery R., Judith A. Scharle, Judith A Hickey, and Gilbert Kahn, Filing Systems and Records Management, New York, Gregg Division/McGraw Hill Book Co, 1981.

Thomas, Schubert and Lee Thomas, Records Management Systems and Administration, New York: John Wiley & Sons, 1983.

Wallace, Patricia E, Records Management Application, New York, John Wiley & Sons, 1983.

INFORMATION SHEET

B 2.1

Establish and Maintain an Alphabetic Filing System

The four basic filing systems include the alphabetic, numeric, geographic, and subject systems. The records manager should select a filing system according to the needs of the company. These needs include such things as the size of the company, the number of records used, the ways records will be handled, the people using the records, and the method of retrieval.

ALPHABETIC FILING SYSTEM

The alphabetic filing system is the arranging of records according to the first letter (A - Z) of the first filing unit. Because of the simplicity of the system, it is the most commonly used system. There is no need for an index, which determines a code for a particular record.

A disadvantage of this system is the confusion involved with the spelling and arranging of the records. To avoid such problems of uniformity, the records manager should adopt a particular alphabetic filing system, such as the ARMA's Rule of Alphabetical Filing (each system varies the basic rules for alphabetical filing).

ACTIVITY SHEET

B 2.2

Alphabetic Filing Systems

The purpose of this activity is to determine whether or not you have understood the alphabetic filing system.

Complete one of the available practice sets containing the rules for alphabetic filing.

ACTIVITY SHEET

B 2.3

Alphabetic Filing System

The purpose of this activity is to determine whether or not you have understood the alphabetic filing system.

Complete the editor's test for the available filing alphabetic practice set. See your instructor for this activity.

INFORMATION SHEET

B 2.4

Establishing and Maintaining Numeric, Geographic, and Subject Systems

NUMERIC FILING SYSTEM

The numeric filing system is the arranging of records using numbers rather than letters. Of all the methods used in the numeric filing system, the consecutive numeric filing method is the easiest to use and establish. This system arranges the documents in consecutive order, and it is used for records with prenumbered documents such as bills of lading, checks, and invoices.

When it is difficult to file large numbers of names, the numeric system may be used. The Social Security Administration uses this type of system. Another advantage of this system is the ease of expanding files and keeping records confidential.

GEOGRAPHIC FILING SYSTEM

The geographic filing system is a more specialized system of filing that arranges the record alphabetically according to geographic area or location. As is true of alphabetical filing, there are several ways to arrange the geographical subdivisions. The main advantage of this system is the ease of locating a particular record according to a specific area. Some users of the geographic filing system include public utilities and national service organizations.

Records in this system may be arranged in a dictionary system or an encyclopedic system. The dictionary system involves filing records in an alphabetical sequence as the dictionary lists words; there are no divisions or subdivisions in the headings. The encyclopedic system includes subdivisions and headings in the file.

SUBJECT FILING SYSTEM

Subject filing arranges the records according to the topic or category. When the business has a small volume of records, the dictionary system may be used. On the other hand, a business with many records generally uses the encyclopedic system.

This system is the most difficult system to use and to set up. Only a person familiar with the business and its procedures should set up a subject filing system. An index listing the alphabetic arrangement of the records is needed to code and index the records.

ACTIVITY SHEET

B 2.5

Numeric, Geographic, and Subject Filing Systems

The purpose of this activity is to determine whether or not you have understood the numeric, geographic, and subject filing systems.

Complete one of the available practice sets containing the rules for numeric, geographic and subject filing.

ACTIVITY SHEET

B 2.6

Numeric, Geographic, and Subject Filing Systems

The purpose of this activity is to determine whether or not you have understood the numeric, geographic, and subject filing systems.

Complete the editor's test for the available numeric, geographic, and subject practice set. See your instructor for this activity.

AREA: Perform Records Management Duties

LEARNER OUTCOME: Alphabetic, Numeric, Geographic, and Subject Filing Systems

LEARNER OUTCOME: B 2

PERFORMANCE/PRODUCT CHECKLIST

STUDENT ______________________________ PERFORMANCE ATTEMPT 1 2 3 4

EVALUATOR ____________________________ DATE ______________________

EVALUATION SITE ____________________

TERMINAL PERFORMANCE OBJECTIVE:

Given a checklist, one must identify the rules and procedures to establish and maintain alphabetic, numeric, geographic, and subject systems.

DIRECTIONS TO THE STUDENT:

Before attempting this task for mastery, carefully review this checklist. When you feel you are ready for evaluation, contact your instructor. You must answer 6 out of 7 items correctly or 86% on the checklist.

DIRECTIONS TO THE EVALUATOR:

The student will contact you when ready for evaluation and must answer correctly 6 out of 7 items or achieve a score equivalent to 86% on the checklist. All items marked with an asterisk (*) must be satisfactorily completed.

PERFORMANCE/PRODUCT CHECKLIST

B 2

Alphabetic, Numeric, Geographic, and Subject Filing Systems

CRITICAL ITEMS	ITEMS TO BE CHECKED OR OBSERVED	RATING YES/NO
*1.	Can you name the four basic filing systems?	___ ___
*2.	Can you distinguish the differences of the four basic filing systems?	___ ___
3.	Could you select the appropriate filing system for a particular situation?	___ ___
*4.	Did you correctly complete the practice set on alphabetic filing?	___ ___
*5.	Did you pass the editor's test on the alphabetic filing system?	___ ___
*6.	Did you successfully complete the practice set on numeric, geographic and subject filing systems?	___ ___
*7.	Did you pass the editor's test for numeric, geographic, and subject filing systems?	___ ___

TOTAL POINTS 7

POINTS NECESSARY 6

SCORE ______

WRITTEN EXAM

B 2

Alphabetic, Numeric, Geographic and Subject Filing Systems

The purpose of this exam is to determine whether or not you have understood the information on alphabetic, numeric, geographic, and subject filing systems.

Each of the questions is true or false. Choose the one that best answers the question. Write true or false on your ANSWER SHEET. PLEASE DO NOT WRITE ON THIS TEST SHEET! To master this exam, you must answer 13 out of 15 items correctly, or 87%.

WRITTEN EXAM

B 2

Alphabetic, Numeric, Geographic, and Subject Filing Systems

T F 1. The Social Security Administration is an example of the alphabetic filing system.

T F 2. The records manager should select a filing system according to the needs of the company.

T F 3. The alphabetic filing system requires the use of an index to determine a code for a particular record.

T F 4. The numeric filing system is the arranging of records according to the alphabet.

T F 5. The numeric filing system is the most commonly used filing system.

T F 6. It is a common technique to adopt more than one alphabetic filing system within a business.

T F 7. There is only one method used in the geographic filing system.

T F 8. The alphabetic filing system is the least used filing system.

T F 9. An index listing the alphabetic arrangement of the records is needed to code and index a record in the subject filing index.

T F 10. There are several subdivisions in a dictionary system.

T F 11. The encyclopedic system includes subdivisions and headings in the file.

T F 12. The geographic filing system is a specialized system of filing that arranges the records alphabetically according to area or location.

T F 13. A person without knowledge of the procedures used in a business may find it difficult to develop a subject filing system.

T F 14. The consecutive numeric filing method is the most difficult of all the methods used in the numeric filing system.

T F 15. The people who will use a particular filing system will influence the type of system selected by the records manager.

Written Exam Key

B 2

Alphabetic, Numeric, Geographic, and Subject Filing Systems

FALSE 1. The Social Security Administration is an example of the alphabetic filing system.

TRUE 2. The records manager should select a filing system according to the needs of the company.

FALSE 3. The alphabetic filing system requires the use of an index to determine a code for a particular record.

FALSE 4. The numeric filing system is the arranging of records according to the alphabet.

FALSE 5. The numeric filing system is the most commonly used filing system.

FALSE 6. It is a common technique to adopt more than one alphabetic filing system within a business.

FALSE 7. There is only one method used in the geographic filing system.

FALSE 8. The alphabetic filing system is the least used filing system.

TRUE 9. An index listing the alphabetic arrangement of the records is needed to code and index a record in the subject filing index.

FALSE 10. There are several subdivisions in a dictionary system.

TRUE 11. The encyclopedic system includes subdivisions and headings in the file.

TRUE 12. The geographic filing system is a specialized system of filing that arranges the records alphabetically according to area or location.

TRUE 13. A person without knowledge of the procedures used in a business may find it difficult to develop a subject filing system.

FALSE 14. The consecutive numeric filing method is the most difficult of all the methods used in the numeric filing system.

Written Exam B 2 Key (continued)

TRUE 15. The people who will use a particular filing system will influence the type of system selected by the records manager.

INFORMATION PROCESSING

Area: Perform Records Management Duties

Learner Outcome B 3: Identify the Procedures to Use a Cross Reference System

Purpose: A cross reference system aids in maintaining business records. This guide will help you learn about the procedures of this important system.

Objective: Given a written exam, you must identify the procedures to establish a cross reference system. To master this learner outcome, you must answer 9 out of 10 items correctly, or 90% on a written exam.

Estimated Class Time: 2 hrs.

Learner Outcome B 3

Identify the Procedures to Use for a Cross Reference System

LEARNING STEPS

READ:	Information Sheet B 3.1, "Using a Cross Reference System."
READ:	Information in one or more of the references on using a cross reference.
COMPLETE:	Activity Sheet B 3.2, "Cross Referencing."
READ:	Information Sheet B 3.3, "Cross Referencing Rules."
READ:	Information in one or more of the resources on cross referencing.
COMPLETE:	Activity Sheet B 3.4, "Identify and Cross Reference Individual, Business, and Special Names in Specific Situations."
COMPLETE:	Performance/Product Checklist B 3, "Using a Cross Reference System."
COMPLETE:	Written Exam B 3, "Use a Cross Reference." Contact your instructor.

RESOURCES

B 3

"ARMA Standards Program Job Description Guideline," *Records Management Quarterly*, October 1983, pp. 42-26, 47-50, 52.

Association of Records Managers and Administrators, Inc., *Technical Publications Price List*, Prairie Village, Kansas.

Bauer, Dennis, *Records Management Projects*, Reston Publishing Company, Inc., Reston, VA., 1982.

Diamond, Susan Z., *Records Management, A Practical Guide*, American Management Association, Amacom Book Division, New York, NY 1983.

Fosegan, Joseph S., *Alphabetic Indexing Rules, Application by Computer*, Cincinatti, Ohio, Southwestern Publishing Co., 1984.

Giglio, Louis, "Optical Storage Cuts Out Paper," *Information Week*, ACMP Publication, July 1, 1985.

Gill, Suzanne L., *File Management and Information Retrieval Systems*, Littleton Co., Libraries Unlimited, 1981.

Maedke, Wilmer O., "What Is Records Management All About?," *Business Eduction Forum*, April-May, 1984, pp. 21-22.

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Stewart, Jeffery R., Judith A. Scharle, Judith A Hickey, and Gilbert Kahn, *Filing Systems and Records Management*, New York, Gregg Division/McGraw Hill Book Co, 1981.

Thomas, Schubert and Lee Thomas, *Records Management Systems and Administration*, New York: John Wiley & Sons, 1983.

Wallace, Patricia E, *Records Management Application*, New York, John Wiley & Sons, 1983.

INFORMATION SHEET

B 3.1

Using a Cross Reference System

Procedures for using cross reference rules:

After inspecting, indexing, and coding a document, it is important to make a decision as to whether or not the document requires a cross reference. This step is taken before sorting and storing the document so that it will be easier to locate when needed.

Correspondence should always be indexed and coded by the caption under which it is most likely to be requested from the file. Whenever a document may be called for in more than one way, it should be filed under the most frequently used caption and cross referenced under the other(s).

When it is necessary to cross reference a document, the caption under which the original is to be filed should be underlined (preferably using a colored pencil). It may also be written on the top right side of the document if it does not appear in the document. The caption selected for the cross reference should also be underlined or written in. In addition, an "X" should be placed at the end of the line or after the written caption to indicate that it is a cross reference.

A cross reference sheet contains information about where to find a particular document. In many cases, necessary reference sheets are made and placed in the files, telling where the original document is filed. If there is only one cross reference and only one or two pages to the document, it may be copied, marked, and placed in the other file location. Otherwise, cross reference sheets should be used as they do not require as many pieces of paper. Cross references should be done in the card index file if one is used as this will also save time in looking up information.

Most businesses use a form such as the cross reference sheet shown on the next page so that complete information is recorded in a uniform manner.

INFORMATION SHEET B 3.1 (continued)

CROSS-REFERENCE SHEET

cross-reference → name where this sheet will be filed

Name or Subject	**File No.**
Regarding	**Date**

SEE

where original → document is filed

Name or Subject	**File No.**

File cross-reference sheet under name or subject at top of the sheet and by the latest date of papers. Describe matter for identification purposes. The papers, themselves, should be filed under name or subject after "SEE."

ACTIVITY SHEET

B 3.2

Cross Referencing

The purpose of this activity is to determine whether or not you have understood the information on using a cross reference.

Each of the questions or statements is either True or False. Please indicate by writing your response on a separate sheet.

T F 1. Correspondence should always be indexed and coded by the caption under which it is most likely to be requested from the file.

T F 2. A cross reference sheet contains information to help you locate the original document.

T F 3. The last step in filing is cross indexing.

T F 4. The cross reference sheet should include information on both the original document and the cross reference.

T F 5. It is possible to have more than one cross reference for the same document.

T F 6. In some instances, a copy of the original document can be used as a cross reference.

T F 7. If a cross reference is needed, it should be completed while coding.

T F 8. An "X" should be placed at the end of the line or after the written caption to indicate that it is a cross reference.

T F 9. It is important that complete information be recorded in a consistent way.

T F 10. If the caption under which the document is to be filed does not appear on the document, it should be written in at the bottom of the document.

T F 11. It is not necessary to cross reference in a card index file if one is kept.

T F 12. Underlining a cross reference caption with a colored pencil will make it easier to identify.

Activity Sheet Key

B 3.2

Cross Referencing

The purpose of this activity is to determine whether or not you have understood the information on using a cross reference.

Each of the questions or statements is either True or False. Please indicate by circling your response.

TRUE 1. Correspondence should always be indexed and coded by the caption under which it is most likely to be requested from the file.

TRUE 2. A cross reference sheet contains information to help you locate the original document.

FALSE 3. The last step in filing is cross indexing.

TRUE 4. The cross reference sheet should include information on both the original document and the cross reference.

TRUE 5. It is possible to have more than one cross reference for the same document.

TRUE 6. In some instances, a copy of the original document can be used as a cross reference.

TRUE 7. If a cross reference is needed, it should be completed while coding.

TRUE 8. An "X" should be placed at the end of the line or after the written caption to indicate that it is a cross reference.

TRUE 9. It is important that complete information be recorded in a consistent way.

FALSE 10. If the caption under which the document is to be filed does not appear on the document, it should be written in at the bottom of the document.

FALSE 11. It is not necessary to cross reference in a card index file if one is kept.

TRUE 12. Underlining a cross reference caption with a colored pencil will make it easier to identify.

INFORMATION SHEET

B 3.3

Cross Referencing Rules

The purpose of this activity is to determine whether or not you have understood cross referencing rules.

Cross reference individual names using the following rules:*

1. When it is difficult to tell which unit is the individual's last name and which is the first name.

Name	File Under	Cross Reference
Nelson Lee	Lee, Nelson	Nelson, Lee
Wong Nam	Nam, Wong	Wong, Nam

2. When an individual's name is changed, it is necessary to cross reference until all records appear in the new name. Some reasons for a name change include marriage, divorce, or adoption.

Name	File Under	Cross Reference	Reason
Ellen Johnson	Johnson, Ellen Kelly	Ellen Johnson	Marriage
Joan Brooks	Brooks, Joan	Martin, Joan Brooks	Divorced; return to maiden name

3. When an individual uses one name professionally and a different one for legal purposes.

Name	File Under	Cross reference	Reason
Marilyn Monroe	Monroe, Marilyn	Baker, Norma Jean	Stage name/ Legal name

* Rules may vary depending on the practice set being used.

INFORMATION SHEET B 3.3 (continued)

4. When records of two or more individuals need to be kept together in the same file. Reasons include medical records of family members, committee members, or apartment lease records.

Name	File Under	Cross Reference	Reason
Timothy Grant	Grant, Timothy	Grant, Marjorie	Medical Record (husband & wife)
Lois Watkins	Watkins, Lois	Phillips, Carol Miller, Ann	Leasing an apt. together

Cross reference business and special names under the following circumstances:

1. When an organization is known by initials or other abbreviations, it should be filed under the complete name and cross referenced under the initials.

Name	File Under	Cross Reference
IBM	International Business Machines	I.B.M.

2. When a business may have some records under the name of an individual with the designation d/b/a (doing business as) while other records are filed according to the name of the business.

Name	File Under	Cross Reference
Brown's Auto Repair	Brown's Auto Repair	Brown, John d/b/a Brown's Auto Repair

3. When the name of a business contains the complete name or initials of an individual, it should be filed as is and cross referenced by last name.

Name	File Under	Cross Reference
J.C. Penney	J.C. Penney	Penney, J.C., Company

INFORMATION SHEET B 3.3 (continued)

4. Sometimes a subject heading may be appropriate if the company uses more than one source for the same service. The individual sources would then be filed alphabetically within the subject folder and also cross referenced.

Name	File Under	Cross Reference
A-1 Typewriter Service	Office Machine Repairs	A-1 Typewriter Service Presto Office Machine Repair

5. When a business has a "coined name" or a name that differs from the normally accepted spelling, it should be filed as is and cross referenced under the normally accepted spelling.

Name	File Under	Cross Reference
RU Ready, Inc.	RU Ready, Inc.	Are You Ready, Inc.

6. When a business changes names for any reason, it should be cross referenced under the old name until all records have been changed to the new name.

Name	File Under	Cross Reference	Reason
Supreme Ice Cream	Supreme Ice Cream	Simply Ice Cream	Business sold and name changed

ACTIVITY SHEET

B 3.4

Identify and Cross Reference Individual, Business, and Special Names in Specific Situations

The purpose of this activity is to determine whether or not you have understood the information on identifying and cross referencing individual, business, and special names.

Each of the questions or statements is either TRUE or FALSE. Please indicate by writing your response on a separate sheet.

T F 1. When an individual has a name change, it is necessary to cross reference under the previous name until all records appear in the new name.

T F 2. Do not keep records of two or more individuals in the same file under any circumstances.

T F 3. d/b/a stands for "doing business as."

T F 4. When a business has a "coined name," it should be filed under the correct spelling.

T F 5. When the name of a business contains the complete name of an individual, it should be cross referenced by last name.

T F 6. It is necessary to cross reference a name when it is difficult to tell which unit is the individual's last name and which is the first.

T F 7. Sometimes it is appropriate to keep records for more than one source together in a subject file.

T F 8. When an individual uses one name professionally and another one for legal purposes, the legal name should be cross referenced.

Activity Sheet Key

B 3.4

Identify and Cross Reference Individual, Business, and Special Names in Specific Situations

The purpose of this activity is to determine whether or not you have understood the information on identifying and cross referencing individual, business, and special names.

Each of the questions or statements is either TRUE or FALSE. Please indicate by writing your response on a separate sheet.

TRUE 1. When an individual has a name change, it is necessary to cross reference under the previous name until all records appear in the new name.

FALSE 2. Do not keep records of two or more individuals in the same file under any circumstances.

TRUE 3. d/b/a stands for "doing business as."

FALSE 4. When a business has a "coined name," it should be filed under the correct spelling.

FALSE 5. When the name of a business contains the complete name of an individual, it should be cross referenced by last name.

TRUE 6. It is necessary to cross reference a name when it is difficult to tell which unit is the individual's last name and which is the first.

TRUE 7. Sometimes it is appropriate to keep records for more than one source together in a subject file.

TRUE 8. When an individual uses one name professionally and another one for legal purposes, the legal name should be cross referenced.

AREA: Perform Records Management Duties

LEARNER OUTCOME: Using a Cross Reference

LEARNER OUTCOME: B 3

PERFORMANCE/PRODUCT CHECKLIST

STUDENT ______________________ PERFORMANCE ATTEMPT 1 2 3 4

EVALUATOR ______________________ DATE ________________

EVALUATION SITE ______________

TERMINAL PERFORMANCE OBJECTIVE:

Given a checklist, one must identify the procedures to establish a cross reference system.

DIRECTIONS TO THE STUDENT:

Before attempting this task for mastery, carefully review this checklist. When you feel you are ready for evaluation, contact your instructor. You must answer 6 out of 6 items correctly or 100% on the checklist.

DIRECTIONS TO THE EVALUATOR:

The student will contact you when ready for evaluation and must answer correctly 6 out of 6 items or achieve a score equivalent to 100% on the checklist. All items marked with an asterisk (*) must be satisfactorily completed.

PERFORMANCE/PRODUCT CHECKLIST

B 3

Using a Cross Reference

CRITICAL ITEMS	ITEMS TO BE CHECKED OR OBSERVED	RATING YES/NO
*1.	Did you read and understand the rules on using cross reference rules in Information Sheet B 3.1?	___ ___
*2.	Did you read one or more of the references on using a cross reference?	___ ___
*3.	Did you successfully complete Activity Sheet B 3.2 on cross referencing?	___ ___
*4.	Did you read and understand "Cross Referencing Rules" in Information Sheet B 3.3?	___ ___
*5.	Did you read and understand the references on cross referencing?	___ ___
*6.	Did you successfully complete Activity Sheet B 3.4 for a self-check on cross referencing rules?	___ ___

TOTAL POINTS 6

POINTS NECESSARY 6

SCORE ______

WRITTEN EXAM

B 3

Use a Cross Reference

The purpose of this activity is to determine whether or not you have understood the information on cross referencing.

Each of the questions or incomplete statements is followed by several words or phrases. Choose the one which best answers the questions or completes the statement correctly. Place the letter associated with that choice (a, b, c, or d) in the numbered blank space on your answer sheet. To master this exam, you must answer 9 out of 10 items correctly, or 90%.

WRITTEN EXAM

B 3

Use a Cross Reference

1. The decision as to whether or not to cross reference a document should be made before

   a. indexing the document
   b. coding the document
   c. sorting the document
   d. inspecting the document

2. If the caption under which the document is to be filed does not appear on the document, it should be written

   a. in the upper right corner
   b. at bottom left corner
   c. in the upper left corner
   d. at bottom right corner

3. A cross reference sheet should include

   a. file name or subject
   b. date
   c. cross reference name or subject
   d. all of the above

4. The letter to be placed at the end of the line on which cross reference caption appears is

   a. Y
   b. A
   c. X
   d. B

5. d/b/a stands for

   a. do by appointment
   b. doing business as
   c. done by afternoon
   d. none of the above

6. It is important that a cross reference sheet be

   a. complete
   b. consistent
   c. accurate
   d. all of the above

7. A reason records of two or more individuals may need to be kept together in the same file is that they are

   a. members of the same committee
   b. leasing an apartment together
   c. medical records for members of the same family
   d. all of the above

8. If a business uses more than one source for the same service, an appropriate file heading would be

   a. alphabetic
   b. geographic
   c. subject
   d. numerical

9. When a business has a "coined name," it should be cross referenced

   a. under the normally accepted spelling
   b. as is
   c. both ways
   d. neither way

10. When a business is known by initials or other abbreviations, it should be filed under the

    a. abbreviation
    b. complete name
    c. combination of both abbreviation and complete name
    d. none of the above

Written Exam Key

B 3

Use a Cross Reference

1. The decision as to whether or not to cross reference a document should be made before

   c. sorting the document

2. If the caption under which the document is to be filed does not appear on the document, it should be written

   a. in the upper right corner

3. A cross reference sheet should include

   d. all of the above

4. The letter to be placed at the end of the line on which cross reference caption appears is

   c. X

5. d/b/a stands for

   b. doing business as

6. It is important that a cross reference sheet be

   d. all of the above

7. A reason records of two or more individuals may need to be kept together in the same file is that they are

   d. all of the above

8. If a business uses more than one source for the same service, an appropriate file heading would be

   c. subject

9. When a business has a "coined name," it should be cross referenced

   a. under the normally accepted spelling

10. When a business is known by initials or other abbreviations, it should be filed under the

    b. complete name

INFORMATION PROCESSING

Area: Perform Records Management Duties

Learner Outcome B 4: Identify the Procedures to Retrieve Information From the Files and Develop a Charge-out Reference System

Purpose: As a worker in the modern office, you must learn how to retrieve information and develop a charge-out reference system.

Objective: Given a written exam, you will identify the procedures to retrieve documents from files and develop a charge-out reference system. To master this learner outcome, you must answer 9 out of 10 items correctly, or 90% on a written exam.

Estimated Class Time: 2 hrs.

Learner Outcome B 4

Identify the Procedures to Retrieve Information From the Files and Develop a Charge-out Reference System

LEARNING STEPS

READ: Information Sheet B 4.1, "Retrieve Information From the Files."

READ: Information in one or more of the references on the retrieval of information from the files.

COMPLETE: Activity Sheet B 4.2, "Retrieving Information From the Files."

READ: Information Sheet B 4.3, "Develop a Charge-out Reference System."

READ: Information in one or more of the references on the development of a charge-out reference system.

COMPLETE: Activity Sheet B 4.4, "Develop a Charge-out Reference System."

COMPLETE: Performance/Product Checklist B 4, "Retrieve Information From the Files and Develop a Charge-out Reference System."

COMPLETE: Written Exam B 4, "Retrieve Information From the Files and Develop a Charge-out Reference System." Contact your instructor.

RESOURCES

B 4

"ARMA Standards Program Job Description Guideline," Records Management Quarterly, October 1983, pp. 42-26, 47-50, 52.

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Diamond, Susan Z., Records Management, A Practical Guide, American Management Association, Amacom Book Division, New York, NY 1983.

Fosegan, Joseph S., Alphabetic Indexing Rules, Application by Computer, Cincinatti, Ohio, Southwestern Publishing Co., 1984.

Giglio, Louis, "Optical Storage Cuts Out Paper," Information Week, ACMP Publication, July 1, 1985.

Gill, Suzanne L., File Management and Information Retrieval Systems, Littleton CO., Libraries Unlimited, 1981.

Maedke, Wilmer O., "What Is Records Management All About?," Business Eduction Forum, April-May, 1984, pp. 21-22.

Stewart, Jeffery, and Gilbert Kahn, Gregg Quick Filing Practice, New York: Gregg Division/McGraw Hill Book Co, 1979.

Stewart, Jeffery R., Judith A. Scharle, Judith A Hickey, and Gilbert Kahn, Filing Systems and Records Management, New York, Gregg Division/McGraw Hill Book Co, 1981.

Thomas, Schubert and Lee Thomas, Records Management Systems and Administration, New York: John Wiley & Sons, 1983.

Wallace, Patricia E, Records Management Application, New York, John Wiley & Sons, 1983.

INFORMATION SHEET

B 4.1

Retrieve Information From the Files

One of the main purposes of file systems is the retrieval of records quickly and easily when needed. Retrieval is the removal of records from the files so that information may be referred to and/or updated. If a record cannot be found, it is useless. The inability to locate a record is time consuming and a poor reflection on the records clerk responsible for retrieval. It is also frustrating to the person requesting the information.

There are two types of retrieval systems, direct-access and indirect-access. The size of the company and volume of records determine which system to follow.

A direct-access system is one in which a person can locate a certain record by going directly to the files and retrieving it under the coded name of the record. The alphabetic filing system is generally referred to as a direct-access system.

When an index must first be referred to in order to determine the code assigned to a record, an indirect-access system is used. The numeric and subject filing systems are generally known as indirect-access systems.

Advantages of direct-access systems

1. Records can be located by going directly to the files and referring to the name of the particular file.
2. Commonly referred to names on guides provide for speed in filing and retrieving records.
3. Retrieval is quick for small volumes of records.

Disadvantages of direct-access systems

1. Specific rules for filing must be strictly followed by all personnel.
2. The system is difficult to use when large volumes of records are stored.
3. Confusion may occur when handling files with similar or identical names.

4. Duplication of records is a common problem--there is no index or other control to show whether a file already exists under a particular name.

Advantages of indirect-access systems

1. Security is provided for all records--individuals unfamiliar with the coding system cannot gain access to specific records.
2. Efficient when large volumes or records are stored.
3. Duplication of records is avoided because each code is used only once.
4. Greater accuracy in filing and retrieving is generally provided.

Disadvantages of indirect-access systems

1. An index must be referred to before you can obtain the code which allows you to retrieve a file record.
2. Several different sets of files are necessary to maintain control.
3. Misfiled records are difficult to locate.

ACTIVITY SHEET

B 4.2

Retrieving Information From the Files

The purpose of this activity is to determine whether or not you have understood the information on retrieving information from the files.

Each of the questions or statements is either TRUE or FALSE. Please indicate by circling your response.

T F 1. In a direct-access sytem, you can locate a record quickly by going directly to the files.

T F 2. Retrieval is removal of records from the files in order to obtain information.

T F 3. The subject filing system is generally known as a direct-access system.

T F 4. An advantage of indirect-access systems is that duplication of records is avoided.

T F 5. The alphabetic filing system is generally referred to as a direct-access system.

T F 6. Duplication of records is not a problem of the direct-access system.

T F 7. The numeric filing system is generally known as an indirect-access system.

T F 8. One of the main purposes of file systems is to be able to retrieve information quickly.

T F 9. Indirect-access systems require several different sets of files in order to maintain control.

T F 10. When an index must first be referred to in order to determine the code assigned to a record, a direct-access system is used.

Activity Sheet Key

B 4.2

Retrieving Information From the Files

The purpose of this activity is to determine whether or not you have understood the information on retrieving information from the files.

Each of the questions or statements is either TRUE or FALSE. Please indicate by circling your response.

TRUE 1. In a direct-access sytem, you can locate a record quickly by going directly to the files.

TRUE 2. Retrieval is removal of records from the files in order to obtain information.

FALSE 3. The subject filing system is generally known as a direct-access system.

TRUE 4. An advantage of indirect-access systems is that duplication of records is avoided.

TRUE 5. The alphabetic filing system is generally referred to as a direct-access system.

FALSE 6. Duplication of records is not a problem of the direct-access system.

TRUE 7. The numeric filing system is generally known as an indirect-access system.

TRUE 8. One of the main purposes of file systems is to be able to retrieve information quickly.

TRUE 9. Indirect-access systems require several different sets of files in order to maintain control.

FALSE 10. When an index must first be referred to in order to determine the code assigned to a record, a direct-access system is used.

INFORMATION SHEET

B 4.3

Develop a Charge-out Reference System

In order to retrieve a record from the file when needed, a records control procedure must be developed to keep track of records after they have been stored in the files. When there are no established procedures for using the material in the files, records may be lost or never used, once stored. Employees cannot do their jobs efficiently if records are not available or if they are so difficult to retrieve that it is easier to do without them. Without proper charge-out procedures, the business runs the risk of losing valuable time and money when attempting to find needed records.

Once correspondence is filed, use is controlled by means of a charge-out reference system. A charge-out reference system makes sure that all records are accounted for whether they are in the files or pulled and in use.

A charge-out reference system usually consists of a

1. Request form--This form should be completed by the person who needs a record or file folder. It includes the name indexed on the borrowed record, date of the record, what it is about, name and department of the borrower, date borrowed, and date to be returned.

2. Replacement record--When an entire folder is removed from the files, a replacement record such as an out folder should be placed in the location of the borrowed folder. When an individual record is pulled from a folder, a substitution card should be placed in the folder exactly where the paper was. These replacement records indicate who has the record and the date it was retrieved from the files. They are helpful as they indicate that a record or file has been pulled. They help the records clerk follow up on the borrowed records if not returned, and they act as bookmarks to make refiling easier.

3. Follow-up system--The length of time records may be allowed out of the file is determined by the needs of the borrower, the value of the records, and the need for security. A time limit should be established for use of borrowed records. If they are to be kept longer than the time allowed, the records should be recharged to the user. The longer records or files are out of the file drawer, the more likely they are to be misplaced or lost.

When a record is requested, a duplicate copy of the request form is often placed in a follow-up file called a "tickler file" under the due date. When the record is returned, the request form is pulled and destroyed. A form for records requested in advance of the date needed may also be included in the "tickler file." On the date the record is needed, a notation should be made on the request form that the record was released. The date it should be returned should also be noted.

The records clerk checks the "tickler file" daily to see if there are any records that need to be pulled or which have not been returned. After checking to make sure that the records have not been returned, the records clerk sends a notice to the borrower requesting the prompt return of the records or the completion of a recharge form if an extension is needed. The recharge form allows a borrower to establish a new due date. The borrower may be the same person who originally borrowed the record or another person.

If a requested record is needed by more than one person, there are two ways to accomplish this transfer efficiently. The records clerk may use a

1. Routing slip--This may be attached to the record requested with a copy kept with the charge-out form. The routing slip lists the names of all the individuals who will be using the records. When finished, the user puts a check mark on the form; this indicates that the records are ready to be sent to the next person listed on the slip.
2. Recharge form--This may be filled out and forwarded to the records department, indicating the next user.

A records clerk achieves success by demonstrating efficient retrieval of records with both speed and accuracy. By establishing a written, uniform charge-out procedure to be followed by everyone, records will be handled efficiently; and control will be maintained.

ACTIVITY SHEET

B 4.4

Develop a Charge-out Reference System

The purpose of this activity is to determine whether or not you have understood the information on developing a charge-out reference system.

Each of the questions or statements is either TRUE or FALSE. Please indicate by circling your response.

T F 1. A records control procedure enables you to keep track of records after they have been stored in the files.

T F 2. A charge-out reference system makes sure that all records are accounted for whether they are in the files or pulled for use.

T F 3. A request form should be completed by the records clerk.

T F 4. When an individual record is pulled from a folder, an out folder should be put in its place.

T F 5. A time limit should be established for use of borrowed records.

T F 6. A "tickler file" is also known as a follow-up file.

T F 7. Request forms should be saved even after the record is returned to the file.

T F 8. A recharge form should be filled out if the record is to be kept longer than the time allowed.

T F 9. It is important that the records clerk check the "tickler file" at least once a week.

T F 10. If a requested record is needed by more than one person, a routing slip may be used.

Activity Sheet Key

B 4.4

Develop a Charge-out Reference System

The purpose of this activity is to determine whether or not you have understood the information on developing a charge-out reference system.

Each of the questions or statements is either TRUE or FALSE. Please indicate by circling your response.

TRUE 1. A records control procedure enables you to keep track of records after they have been stored in the files.

TRUE 2. A charge-out reference system makes sure that all records are accounted for whether they are in the files or pulled for use.

FALSE 3. A request form should be completed by the records clerk.

FALSE 4. When an individual record is pulled from a folder, an out folder should be put in its place.

TRUE 5. A time limit should be established for use of borrowed records.

TRUE 6. A "tickler file" is also known as a follow-up file.

FALSE 7. Request forms should be saved even after the record is returned to the file.

TRUE 8. A recharge form should be filled out if the record is to be kept longer than the time allowed.

FALSE 9. It is important that the records clerk check the "tickler file" at least once a week.

TRUE 10. If a requested record is needed by more than one person, a routing slip may be used.

AREA: Perform Records Management Duties

LEARNER OUTCOME: Retrieve Information From the Files and Develop a Charge-out Reference System

LEARNER OUTCOME: B 4

PERFORMANCE/PRODUCT CHECKLIST

STUDENT ______________________________ PERFORMANCE ATTEMPT 1 2 3 4

EVALUATOR ____________________________ DATE ____________________

EVALUATION SITE ____________________

TERMINAL PERFORMANCE OBJECTIVE:

Given a checklist, one will identify the procedure to retrieve documents from files and develop a charge-out reference system.

DIRECTIONS TO THE STUDENT:

Before attempting this task for mastery, carefully review this checklist. When you feel you are ready for evaluation, contact your instructor. You must answer 5 out of 5 items correctly or 100% on the checklist.

DIRECTIONS TO THE EVALUATOR:

The student will contact you when ready for evaluation and must answer correctly 5 out of 5 items or achieve a score equivalent to 100% on the checklist. All items marked with an asterisk (*) must be satisfactorily completed.

PERFORMANCE/PRODUCT CHECKLIST

B 4

Retrieve Information From the Files and Develop a Charge-out Reference System

CRITICAL ITEMS	ITEMS TO BE CHECKED OR OBSERVED	RATING YES/NO
*1.	Did you read and understand Information Sheet B 4.1 on "Retrieve Information From the Files?	___ ___
*2.	Did you read information in one or more of the references on the retrieval of information from the files?	___ ___
*3.	Did you successfully complete Activity Sheet B 4.2 for a self-check on retrieving information from the files?	___ ___
*4.	Did you read Information Sheet 4.3 on developing a charge-out reference system?	___ ___
*5.	Did you successfully complete Activity Sheet B 4.4 for a self-check on developing a charge-out reference system?	___ ___

TOTAL POINTS 5

POINTS NECESSARY 5

SCORE ______

WRITTEN EXAM

B 4

Retrieve Information From the Files and Develop a Charge-out Reference System

The purpose of this exam is to determine whether or not you have understood the information on retrieving information from the files and developing a charge-out reference system.

Each of the questions or incomplete statements below is followed by several words or phrases. Choose the one that best answers the question or completes the statement correctly. Place the letter associated with that choice (A, B, C, or D) in the numbered blank space on your answer sheet. To master this exam, you must answer 9 out of 10 questions correctly, or 90%.

WRITTEN EXAM

B 4

Retrieve Information From the Files and Develop a Charge-out Reference System

1. An advantage of a direct-access system is

   a. security is provided
   b. efficient for large volumes of records
   c. duplication or records is avoided
   d. retrieval is quick for small volumes of records

2. A disadvantage of indirect-access system is

   a. misfiled records are difficult to locate
   b. specific rules of filing must be followed
   c. duplication of records is a common problem
   d. system is difficult to use when large volumes or records are stored

3. A charge-out reference system usually consists of

   a. a request form
   b. a replacement record
   c. a follow-up system
   d. all of the above

4. Another name for a "tickler file" is

   a. direct-access system
   b. follow-up file
   c. index
   d. indirect-access system

5. Another name for a replacement record is

   a. out folder
   b. tickler file
   c. request form
   d. routing slip

6. Information on a request form includes

   a. name of borrower
   b. date borrowed
   c. date to be returned
   d. all of the above

7. A disadvantage of direct-access system is

   a. index must be referred to first
   b. specific rules for filing must be followed by all personnel
   c. several different sets of files are necessary to maintain control
   d. all of the above

8. Information on a routing slip includes

   a. names of all persons who will be using the record
   b. a place to check off when finished with the record
   c. date of routing
   d. all of the above

9. The length of time records may be allowed out of the file is determined by

   a. value of the records
   b. needs of the borrower
   c. need for security
   d. all of the above

10. An advantage of indirect-access system is

   a. records can be located by going directly to the files
   b. it is not necessary to refer to an index first
   c. duplication of records is avoided
   d. none of the above

Written Exam Key

B 4

Retrieve Information From the Files and Develop a Charge-out Reference System

1. An advantage of a direct-access system is

   d. retrieval is quick for small volumes of records

2. A disadvantage of indirect-access system is

   a. misfiled records are difficult to locate

3. A charge-out reference system usually consists of

   d. all of the above

4. Another name for a "tickler file" is

   b. follow-up file

5. Another name for a replacement record is

   a. out folder

6. Information on a request form includes

   d. all of the above

7. A disadvantage of direct-access system is

   b. specific rules for filing must be followed by all personnel

8. Information on a routing slip includes

   d. all of the above

9. The length of time records may be allowed out of the file is determined by

   d. all of the above

10. An advantage of indirect-access systems is

    c. duplication of records is avoided

INFORMATION PROCESSING

Area: Perform Records Management Duties

Learner Outcome B 5: Identify the Procedures to Locate Misfiles and to Use Filing Supplies and Equipment Correctly

Purpose: As a worker in the modern office, you must locate misfiles and to use filing supplies and equipment correctly.

Objective: Given a written exam, you will identify the procedures to locate misfiles and to use filing equipment and supplies correctly. To master this learner outcome, you must answer 9 out of 10 items correctly, or 90% on a written exam.

Estimated Class Time: 3 hrs.

Learner Outcome B 5

Identify the Procedures to Locate Misfiles and to Use Filing Supplies and Equipment Correctly

LEARNING STEPS

READ: Information Sheet B 5.1, "Locate Misfiles."

READ: Information in one or more of the resources about misfiles.

COMPLETE: Activity Sheet B 5.2, "Locate Misfiles."

READ: Information Sheet B 5.3, "Using Filing Equipment and Supplies Correctly."

READ: Information from one or more of the resources on the use of equipment and supplies.

COMPLETE: Activity Sheet B 5.4, "Using Filing Equipment and Supplies Correctly."

COMPLETE: Performance/Product Checklist B 5, "Locate Misfiles and Use Filing Supplies and Equipment Correctly."

COMPLETE: Written Exam B 5, "Locate Misfiles and Use Filing Supplies and Equipment Correctly." Contact your instructor.

RESOURCES

B 5

"ARMA Standards Program Job Description Guideline," Records Management Quarterly, October 1983, pp. 42-26, 47-50, 52.

Association of Records Managers and Administrators, Inc., Technical Publications Price List, Prairie Village, Kansas.

Bauer, Dennis, Records Management Projects, Reston Publishing Company, Inc., Reston, VA., 1982.

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Fosegan, Joseph S., Alphabetic Indexing Rules, Application by Computer, Cincinatti, Ohio, Southwestern Publishing Co., 1984.

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Stewart, Jeffery, and Gilbert Kahn, Gregg Quick Filing Practice, New York: Gregg Division/McGraw Hill Book Co, 1979.

Stewart, Jeffery R., Judith A. Scharle, Judith A Hickey, and Gilbert Kahn, Filing Systems and Records Management, New York, Gregg Division/McGraw Hill Book Co, 1981.

Thomas, Schubert and Lee Thomas, Records Management Systems and Administration, New York: John Wiley & Sons, 1983.

Wallace, Patricia E, Records Management Application, New York, John Wiley & Sons, 1983.

INFORMATION SHEET

B 5.1

Locate Misfiles

One of the major problems of Records Management is the location of misfiles. It is very easy for records to become misplaced or lost. A systematic process for searching for these missing records must be followed. Before starting to look for the lost document, one should determine if it was currently being handled by an individual when it was lost or if anyone recalls the particular record.

If a record was currently being handled by an individual who said that the file was returned, the person conducting the record search should

1. Check the charged out material even though it is not supposed to be out.
2. Check the material to be filed in the sorter.
3. Check the desk top and desk tray of the person who last handled the record.
4. Check the file clerk's desk top or desk tray.
5. Look through material in the Records Management's "In Basket."

If no one recalls the particular record in question, the following steps should be taken:

1. Look in the file folder to see if the record has been filed out of sequence.
2. Look through the folders in front of and behind the folder of the missing record.
3. Look in the bottom of the file drawer and in front and back of the folder in question.
4. Look through folders bearing similar names or numbers.
5. Look in the miscellaneous file if the record in question was supposed to have been filed in an individual folder.
6. Look in the files under other possible file captions such as a cross reference, other subjects or geographic locations.

INFORMATION SHEET B 5.1 (continued)

If after these systematic searches the record is not found, it could have been attached to another record, filed with other papers or disposed of accidentally. To continue to look any more will probably be a waste of time. It is likely that it will reappear when other records are processed in the every-day routine of the company.

ACTIVITY SHEET

B 5.2

Locate Misfiles

Fill in the blanks:

List six items a person should do if a lost file was recently recalled by an individual.

1. ________________________________

2. ________________________________

3. ________________________________

4. ________________________________

5. ________________________________

6. ________________________________

If no one recalls the missing record, list the six steps that should be taken.

1. ________________________________

2. ________________________________

3. ________________________________

4. ________________________________

5. ________________________________

6. ________________________________

Take your practice set that you completed in Task B 2 to your instructor. Your instructor will misfile five items. He/she will give you a list of the five items you are to find. Find the five items according to the rules learned. Show the found items to your instructor.

Activity Sheet Key

B 5.2

Locate Misfiles

Refer to information sheet B 5.1 for listing of steps in locating misfiles.

Design three plans whereby five letters are pulled from the practice set and are misfiled (make certain that you have a plan as to where these letters are to be misfiled). By having three different plans, you can have a teacher's aide or a student aide complete the assignment and the student will not know which of the three different misfiles she is getting. Give the student a list of the letters he/she is to find. This exercise will also be a way of making sure that the student has completed the practice set correctly from the previous lesson.

INFORMATION SHEET

B 5.3

Using Filing Equipment and Supplies Correctly

It is essential that Records Management personnel understand not only the principles and systems of filing but also the types of equipment and supplies available and their proper use. In order to use these products wisely, it is important that you understand the system needs and that you understand the purpose of the supplies and equipment you decide to use. A general rule is to use more expensive equipment and supplies for active files and less expensive materials for inactive files.

The following should be considered in choosing the proper filing equipment and supplies:

1. Saving time--Equipment and supplies must be designed so that people that handle the records do not go through any excess motions. The biggest expense in filing is the cost of the people who do the work.

2. Providing adequate protection of records--Some files must be safeguarded with locks while others be fireproof. The content of the file determines the security necessary.

3. Conserving space--Because of the cost of floor space and maintenance expenses, files should be designed so that they do not take up more space than is absolutely necessary.

Choose the size file cabinets that best suit the needs of your company:

1. Two-drawer desk height files
2. Three-drawer files, which can be used as a working counter
3. Four-drawer filing cabinets, which are the most widely used
4. Five-drawer filing cabinets, which are often the most efficient for time and space saving
5. Six-drawer filing cabinets, which are space saving but you may have to stand on a stool in order to file in the top drawers

Another type of file is the lateral file cabinet. Lateral file cabinets come in two-, three-, four-, and five-drawer heights. The drawer shelves roll out laterally and can be pulled clear of the file cabinet.

Mechanized files are labor-saving devices with many racks or drawers for cards or documents.

Besides cabinets for holding records, open-shelf files and motorized open-shelf files are compatible with numeric filing systems.

Storage files are used for outdated, inactive files. They are made of fiberboard or cardboard with steel reinforcements and are usually constructed so they can be stacked on top of each other from floor to ceiling.

When ordering filing supplies, the records management supervisor will have to make many decisions regarding the variety of folders, form guides, index cards, index cabinets, and other filing supplies available.

File folders are available in a variety of quality. If files are not handled often, a less expensive folder can be purchased. Records receiving heavy use should be kept in more durable folders. File folders also have tabs which help the records management personnel identify contents. Suspended folders which hang from the top of the drawer are also available.

Labels for folders and guides are available in a variety of sizes and colors. Do not write on labels but use printed or typewritten ones. Sometime handwriting is difficult to read.

Guides are signposts that help direct the records management personnel to the correct folder. Guides with metal reinforced tabs are available for very active permanent folders. Out-guides are usually a heavy cardboard sheet with the word OUT on the tab.

Commercial cross-reference forms are also available. These forms should have space to identify where the original document is filed.

Card cabinets can be used for storing cards. Posted records are freqently stored in visible file cabinets. Rotary files often have cards on wheels. Readers which double as storage units for microfilming are also available.

Another thing to remember in using equipment and supplies correctly is to use them safely. One should never open more than one file drawer at a time; the storage cabinet might tip toward that person when doing so. Also, a file drawer should never be left open even though one is finished with it and plans to come back to it in a few minutes. Someone could very easily trip or hurt himself/herself on the file drawer.

ACTIVITY SHEET

B 5.4

Using Filing Equipment and Supplies Correctly

Read the following case study and complete the questions at the end of the study, using the information you have learned in this packet.

You have been hired as a Records Analyst for the law firm Benson and Hedges. They have hired you because their files and filing system are a mess and you have the reputation for organization and getting the job done. You have been asked to look at the filing system and make recommendations as to what can be done to rectify the problem.

The following are some of the problems that they have:

1. File drawers and individual folders are jammed too tightly. All of the file drawers are the same height no matter how often they are used. The file folders are also all the same size and strength no matter how much and how often information is used from the files.
2. All employees have access to the files. No formal charge-out system is used which makes it difficult to find information.
3. Many of the file captions are handwritten.
4. No procedure is followed for the storing of old records. When the cabinets get too full, some of the older files are removed.
5. No formal cross-reference procedure is used. If the file clerk feels that an item needs to be cross referenced, a plain piece of paper is used.

Write a brief paper stating some of the major changes you would implement for a more efficient records management system.

Activity Sheet Key

B 5.4

Using Filing Equipment and Supplies Correctly

The following are some items you would look for in grading the case study:

1. Different size file drawers should be used, depending upon need.
2. Storage boxes should be used for older records.
3. Difference in sizes and strengths of folders should be used, depending upon the size and use of the files.
4. Printed cross-referenced forms should be used.
5. A formal charge-out system should be used when records are removed from the files.
6. What personnel are authorized to have access to the files.
7. Standardize the file captions.
8. Establish a formal procedure for the retention and removal of older records.

AREA: Perform Records Management Duties

LEARNER OUTCOME: Locate Misfiles and Use Filing Supplies and Equipment Correctly

LEARNER OUTCOME: B 5

PERFORMANCE/PRODUCT CHECKLIST

STUDENT ______________________________ PERFORMANCE ATTEMPT 1 2 3 4

EVALUATOR ____________________________ DATE ____________________

EVALUATION SITE ____________________

TERMINAL PERFORMANCE OBJECTIVE:

Given a Performance/Product checklist, one will identify the procedures to locate misfiles and to use filing equipment and supplies correctly.

DIRECTIONS TO THE STUDENT:

Before attempting this task for mastery, carefully review this checklist. When you feel you are ready for evaluation, contact your instructor. You must answer 5 out of 6 items correctly or 84% on the checklist.

DIRECTIONS TO THE EVALUATOR:

The student will contact you when ready for evaluation and must answer correctly 5 out of 6 items or achieve a score equivalent to 84% on the checklist. All items marked with an asterisk (*) must be satisfactorily completed.

PERFORMANCE/PRODUCT CHECKLIST

B 5

Locate Misfiles and Use Filing Supplies and Equipment Correctly

CRITICAL ITEMS	ITEMS TO BE CHECKED OR OBSERVED	RATING YES/NO
*1.	Did you read and understand Information Sheet B 5.1, "Locate Misfiles?"	___ ___
*2.	Did you read and understand information in one of the resources about misfiles?	___ ___
*3.	Did you successfully complete Activity Sheet B 5.2 for a self-check on locating misfiles?	___ ___
*4.	Did you read and understand Information Sheet B 5.3 on "Using Filing Equipment and Supplies Correctly?"	___ ___
5.	Did you read information from one or more of the resources on the use of equipment and supplies?	___ ___
*6.	Did you complete Activity Sheet B 5.4 for a self-check on using filing equipment and supplies correctly?	___ ___

TOTAL POINTS 6

POINTS NECESSARY 5

SCORE ______

WRITTEN EXAM

B 5

Locate Misfiles and Use Filing Supplies and Equipment Correctly

The purpose of this exam is to determine whether or not you have understood the information on locating misfiles and using filing supplies and equipment correctly.

Each of the questions is either TRUE or FALSE. Choose the one that best answers the question. Write true or false on your answer sheet. To master this exam, you must answer 9 out of 10 questions correctly, or 90%.

WRITTEN EXAM

B 5

Locate Misfiles and Use Filing Supplies and Equipment Safely and Correctly

T F 1. Misfiling seldom happens in an office.

T F 2. It is not necessary to have charge-out forms for files.

T F 3. Labels should be printed or typewritten.

T F 4. Six-drawer file cabinets are always the best ones to purchase to store files.

T F 5. The biggest expense in filing is the salaries of the people doing the work.

T F 6. It is an acceptable procedure to have more than one file drawer open at one time.

T F 7. Labels for files come in a variety of sizes and colors.

T F 8. Files should be arranged so that they do not take up any more space than necessary.

T F 9. Cross-reference forms are not necessary in a filing system.

T F 10. There are lateral as well as vertical file cabinets.

Written Exam Key

B 5

Locate Misfiles and Use Filing Supplies and Equipment Safely and Correctly

FALSE 1. Misfiling seldom happens in an office.

FALSE 2. It is not necessary to have charge-out forms for files.

TRUE 3. Labels should be printed or typewritten.

FALSE 4. Six-drawer file cabinets are always the best ones to purchase to store files.

TRUE 5. The biggest expense in filing is the salaries of the people doing the work.

FALSE 6. It is an acceptable procedure to have more than one file drawer open at one time.

TRUE 7. Labels for files come in a variety of sizes and colors.

TRUE 8. Files should be arranged so that they do not take up any more space than necessary.

FALSE 9. Cross-reference forms are not necessary in a filing system.

TRUE 10. There are lateral as well as vertical file cabinets.

INFORMATION PROCESSING

Area: Perform Records Management Duties

Learner Outcome B 6: Explore Micrographics

Purpose: As a worker in the modern office, you must understand the uses of micrographics. This guide will help you learn about this records management activity.

Objective: Given a written exam, you will identify micrographics procedures. To master this learner outcome, you must answer 13 out of 15 items correctly, or 87% on a written exam.

Estimated Class Time: 2 hrs.

Learner Outcome B 6

Explore Micrographics

LEARNING STEPS

READ:	Information Sheet B 6.1, "Exploring Micrographics."
READ:	One or more of the resources on micrographics.
COMPLETE:	Activity Sheet B 6.2, "Exploring Micrographics."
COMPLETE:	Performance/Product Checklist B 6, "Exploring Micrographics."
COMPLETE:	Written Exam B 6, "Exploring Micrographics." Contact your instructor.

RESOURCES

B 6

"ARMA Standards Program Job Description Guideline," Records Management Quarterly, October 1983, pp. 42-26, 47-50, 52.

Association of Records Managers and Administrators, Inc., Technical Publications Price List, Prairie Village, Kansas.

Bauer, Dennis, Records Management Projects, Reston Publishing Company, Inc., Reston, VA., 1982.

Diamond, Susan Z., Records Management, A Practical Guide, American Management Association, Amacom Book Division, New York, NY 1983.

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Stewart, Jeffery R., Judith A. Scharle, Judith A Hickey, and Gilbert Kahn, Filing Systems and Records Management, New York, Gregg Division/McGraw Hill Book Co, 1981.

Thomas, Schubert and Lee Thomas, Records Management Systems and Administration, New York: John Wiley & Sons, 1983.

Wallace, Patricia E, Records Management Application, New York, John Wiley & Sons, 1983.

INFORMATION SHEET

B 6.1

Exploring Micrographics

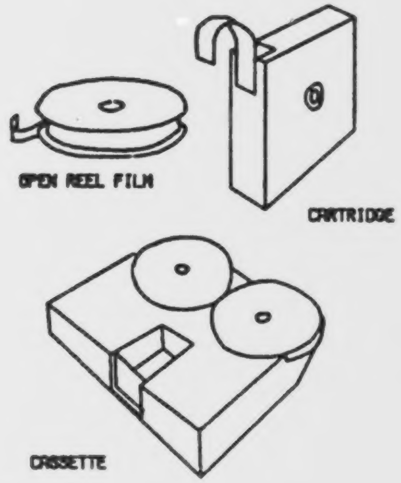
Micrographics has become more important in the filming cycle. With the introduction of microfilming many years ago and now with computer microfilming, more and more companies are microfilming their older documents. This packet will help you to understand the many phases of micrographics.

Micrographics is a term used for the process of reproducing information on microforms. A microform is either film or paper that contains microimages. A microimage is a reduction of a larger record. Microfilm is a roll of attached microimages, while microfiche is a sheet that contains several documents in miniature.

The following are some advantages of microfilming:

1. Information is located quickly on a machine called a reader.
2. Microfilm readers are equipped to print copy. The operator can find the document on the microfilm and print the copy in one operation.
3. Microfilm is small and requires less storage space than paper.
4. Microfilm is neater and cleaner than files.
5. Because microfilm stores a series of records on one piece of film, it is impossible to misplace an individual record.
6. Microfilm can be used to store graphic as well as alphanumeric data.
7. Microfilm is a tangible record that can be read directly as opposed to computer tapes and word processing media.
8. Compared to large files, microfilm can be easily transported.
9. It is easier to convert to microfilm than to computerized files.
10. Microfilm costs less to mail than paper copies.

INFORMATION SHEET B 6.1 (continued)


OPEN REEL FILM
CARTRIDGE
CASSETTE

EXAMPLES OF MICROFILM

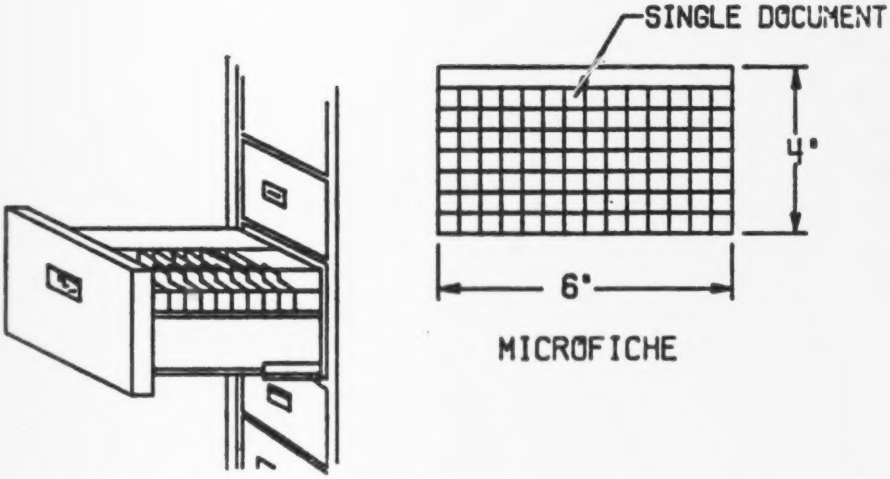

SINGLE DOCUMENT
4"
6"
MICROFICHE

Exhibit B
Microfiche

INFORMATION SHEET B 6.1 (continued)

The following are reasons why microfilming is used more and more in business:

1. The cost of microfilming is decreasing.
2. The federal government will accept microfilm in place of the original document.
3. New equipment is producing a better image.
4. Indexes can be prepared of the microfilm.

The following are some advantages of microfiche as opposed to microfilm:

1. A sheet of microfiche is easier to use than a roll of film.
2. Microfiche can be updated by adding pages.
3. Microfiche can be photocopied to delete a part of the document.

The following are some disadvantages of microfilm and microfiche:

1. Paper copies from microfiche and microfilm are slow and expensive to produce.
2. Microfilm is difficult to update since a new document cannot be inserted in place of an old one without destroying the integrity of the film.
3. Special equipment is needed to read documents on microfilm and microfiche.
4. It is not possible to write on microfilm or on microfiche.

The latest application in microfilming is being completed with the use of computers. CAR, which means "Computer Assisted Retrieval," is used to index the data and search for it while microfilm is used to store and display the information. The computer obtains the desired information and produces it for you in readable form. One advantage of CAR is that large quantities of information can be stored in a computer, and the person requesting information can ask for it under different topics; for example, a doctor might access the computer to get information about a rare disease.

INFORMATION SHEET B 6.1 (continued)

COM refers to "Computer Output Microfilm" or "Computer Output Microfiche." Computer Output Microfilm is a method of converting computer generated data into usable information on microfilm.

Instead of the output from the computer being on paper, the output generated is microfilm or microfiche. COM allows information to be printed on microforms. The computer processes the information into a form readable by the microform processing unit, and that unit produces the microfilm desired by the user.

With the advancement of computers and microfilming combined, it is possible that we are heading to the paperless office. Instead of being paper, the source document will actually be the electronic storage media in the computer. Even if the paperless office arrives, an understanding of manual filing and data management systems is still necessary in order to let the user know what the computer is doing.

ACTIVITY SHEET

B 6.2

Exploring Micrographics

Define the following terms:

1. Micrographics

2. Microform

3. Microfiche

4. Microfilm

5. CAR

6. COM

7. READER

Complete the filing case study as briefly as possible:

You are employed as a file clerk at the Smith Brothers Co. Your company is thinking about using microfilming equipment to cut down on the storage of its old documents. You have been asked to do some research on microfilming and report to them the advantages and disadvantages of starting a microfilming system.

ACTIVITY SHEET KEY

B 6.2

Exploring Micrographics

1. Micrographics: process of reproducing information on microforms
2. Microform: film or paper that contains microimages
3. Microfiche: a sheet that contains several documents in miniature
4. Microfilm: a roll of attached microimages
5. CAR: Computer Assisted Retrieval
6. COM: Computer Output Microfilm or Computer Output Microfile
7. Reader: Machine that reads microfilm or microfiche

Case Study:

See Information Sheet B 6.1 for advantages and disadvantages of microfilming.

AREA: Perform Records Management Duties

LEARNER OUTCOME: Exploring Micrographics

LEARNER OUTCOME: B 6

PERFORMANCE/PRODUCT CHECKLIST

STUDENT ______________________________ PERFORMANCE ATTEMPT 1 2 3 4

EVALUATOR ____________________________ DATE ____________________

EVALUATION SITE ____________________

TERMINAL PERFORMANCE OBJECTIVE:

Given a checklist, one will identify micrographics procedures.

DIRECTIONS TO THE STUDENT:

Before attempting this task for mastery, carefully review this checklist. When you feel you are ready for evaluation, contact your instructor. You must answer 3 out of 3 items correctly or 100% on the checklist.

DIRECTIONS TO THE EVALUATOR:

The student will contact you when ready for evaluation and must answer correctly 3 out of 3 items or achieve a score equivalent to 100% on the checklist. All items marked with an asterisk (*) must be satisfactorily completed.

PERFORMANCE/PRODUCT CHECKLIST

B 6

Exploring Micrographics

CRITICAL ITEMS	ITEMS TO BE CHECKED OR OBSERVED	RATING YES/NO
*1.	Did you read and understand Information Sheet B 6.1 on exploring micrographics?	___ ___
*2.	Did you read and understand one or more of the resources on micrographics?	___ ___
*3.	Did you successfully complete Activity Sheet B 6.2 for a self-check on exploring micrographics?	___ ___

TOTAL POINTS 3

POINTS NECESSARY 3

SCORE ______

WRITTEN EXAM

B 6

Exploring Micrographics

The purpose of this exam is to determine whether or not you have understood the information on exploring micrographics.

Each of the questions is true or false. Choose the one that best answers the question. Circle true or false on your answer sheet. To master this exam, you must answer 13 out of 15 questions correctly, or 87%.

WRITTEN EXAM

B 6

Exploring Micrographics

T F 1. Microfilming is not used very much in large business.

T F 2. Microfilmed information is located quickly on a machine called a reader.

T F 3. Most microfilm readers are not equipped to print a hard copy.

T F 4. A microform is either film or paper that contains microimages.

T F 5. Microfilm is the same as microfiche.

T F 6. Microfilm is more difficult to store than paper.

T F 7. A sheet of microfiche is easier to use than a roll of microfilm.

T F 8. The cost of microfilming is constantly increasing.

T F 9. The federal government will not accept microfilm in place of original documents.

T F 10. Computer assisted retrieval is not used very much in business.

T F 11. COM allows information to be printed on microforms.

T F 12. Microfilm is difficult to update.

T F 13. A person using CAR cannot retrieve information about different topics very easily.

T F 14. Special equipment is not needed to read microfilm or microfiche.

T F 15. In the paperless office, the source document will be the electronic storage media in the computer.

Written Exam Key

B 6

Exploring Micrographics

FALSE 1. Microfilming is not used very much in large business.

TRUE 2. Microfilmed information is located quickly on a machine called a reader.

FALSE 3. Most microfilm readers are not equipped to print a hard copy.

TRUE 4. A microform is either film or paper that contains microimages.

FALSE 5. Microfilm is the same as microfiche.

FALSE 6. Microfilm is more difficult to store than paper.

TRUE 7. A sheet of microfiche is easier to use than a roll of microfilm.

FALSE 8. The cost of microfilming is constantly increasing.

FALSE 9. The federal government will not accept microfilm in place of original documents.

FALSE 10. Computer assisted retrieval is not used very much in business.

TRUE 11. COM allows information to be printed on microforms.

TRUE 12. Microfilm is difficult to update.

FALSE 13. A person using CAR cannot retrieve information about different topics very easily.

FASLE 14. Special equipment is not needed to read microfilm or microfiche.

TRUE 15. In the paperless office, the source document will be the electronic storage media in the computer.

Glossary

ALPHABETIC FILING SYSTEM	the arranging of records to the first letter
ARMA	association of Records Management and Administrators
CAPTION	name, letter, or number needed to file
CAR	Computer Assisted Retrieval
CHARGE-OUT REFERENCE SYSTEM	a system developed for keeping track of records that have been temporarily removed from the files
CHARGE-OUT REQUEST FORM	a form completed by the person borrowing records from the files
CODE	system frequently used in the numeric filing system using symbols to represent words
CODING	process of underlining or marking a document with the caption for storage
COM	Computer Output Microfilm
CROSS REFERENCING	coding a document with another caption under which it may be referenced
DICTIONARY SYSTEM	method of filing records in an alphabetical sequence with no divisions or subheadings
DIRECT-ACCESS SYSTEM	system in which a person can locate a record by going directly to the files and retrieving it under the coded name of the record

GLOSSARY B 7 (continued)

ENCYCLOPEDIA SYSTEM	method of filing records with subdivisions and headings
FOLLOW-UP SYSTEM	system of checking on borrowed records to be sure that they are returned to the files
GEOGRAPHIC FILING SYSTEM	filing system that alphabetically arranges records according to area or location
GUIDES	signposts that direct the records management personnel to the correct folder
INDEXING	the process of deciding on the caption under which a record is to be filed
INDIRECT-ACCESS SYSTEM	system in which an index must first be referred to in order to determine the code assigned to a record
INSPECTING	process of checking a document for release marks
LABELS	a sticker that is placed on folders and guides on which the caption appears
MICROFICHE	miniature filmed records in card form
MICROFILM	a roll of attached microimages
MICROFORM	film of paper that contains microimages
MICROGRAPHICS	process of reproducing information on microforms
MISFILE	a document that cannot be located in its proper place

GLOSSARY B 7 (continued)

NUMERIC FILING SYSTEM	the arranging of records using an alphabetic index of code numbers assigned to business names or subjects
OUT FOLDER	a substitute folder located in place of a borrowed one
READER	a machine used to view microfilm or microfiche
RECHARGE FORM	form used to charge out records for an extension of time or when records are passed from one person to another without being returned to the files
RECORDS CENTER	place that houses active and inactive records
RECORDS CLERK	person who files records
RECORDS CONTROL	keeping track of records after they have been stored in the files
RECORDS RETRIEVAL	removal of records from storage for referencing or updating information in the files
RELEASE MARKS	indication that a record is ready to be filed
ROUTING SLIP	form attached to charged-out records indicating the order in which they are to be delivered to more than one person before being returned to the files
SORTING	arranging records in sequence before sorting
STORAGE FILES	boxes containing inactive records

GLOSSARY B 7 (continued)

STORING	process of placing records in a file drawer or cabinet
SUBJECT FILING SYSTEM	arranging records according to topic or category
SUBSTITUTION CARD	replacement for a record removed from a file folder identifying the borrower
TICKLER FILE	a follow up file checked daily

DATA BASE MANAGEMENT SYSTEMS

DATA BASE

PREFACE

This learning activity packet on data base management systems is designed for use by students in grades 11-14 as they learn the basic concepts of data base management. The material is written in generic form and can be adapted for use with specific instructions from the software package you are using.

Data Base Management Systems

Learner Outcome Number	Learner Outcome
C 1	Identify and Define General Data Base Concepts and Terminology
C 2	Identify and Complete the Procedures for Loading the Data Base System Disk and for Formatting the Data Disk
C 3	Create a Data Base, Define and Enter the Data Base Structure
C 4	Enter and Edit Data Using the Defined Screen Format
C 5	Use Simple Search or Query Commands to Select Information from a Data Base for Displaying or Printing
C 6	Identify and Complete Procedures for Inserting/Appending, Modifying, and Deleting Records in the Data Base
C 7	Design and Define a Report Format and Print a Report
C 8	Define the Report Specifications Involving Arithmetic and Logical Operations, and Print a Report
C 9	Define and Complete the Procedures for Sorting and/or Indexing the Data Base, and Print a Report
C 10	Identify and Complete Disk Management Procedures Such As Copying, Renaming, and Passwords Protecting a Data File
C 11	Identify and Complete the Procedures for Renaming Fields and for Modifying the Structure of a Data Base
C 12	Identify and Complete the Procedures for Setting Up Command Files
C 13	Evaluate a Data Base Package

INFORMATION PROCESSING

Area: Data Base Management Systems

Learner Outcome C 1: Identify and Define General Data Base Concepts and Terminology

Purpose: As worker in the modern office, you will need to know how to use a data base management system. You must also be familiar with the fundamental concepts and terms related to its use. In this learning guide, you will learn these concepts and terms.

Objective: Given a written exam, you will identify and define data base concepts and terms. To master this task, you must score at least 11 out of 13 points or 85% on a written exam.

Estimated Class Time: 2 hrs.

Learner Outcome C 1

Identify and Define General Data Base Concepts and Terminology

LEARNING STEPS

READ:	Information Sheet C 1.1, "Data Base Management Systems Concepts and Terms."
READ:	Information on data base concepts and terms in one or more of the resources below.
COMPLETE:	Activity Sheet C 1.2, "Identifying Data Base Concepts and Terms."
REVIEW:	Information Sheet C 1.3, "Data Base Glossary."
COMPLETE:	Activity Sheet C 1.4, "Matching Data Base Terms with Definitions."
COMPLETE:	Written Exam C 1, "Identify and Define General Data Base Concepts and Terminology." Contact your instructor.

RESOURCES

Dravillas, Paul, Steven Stilwell, Brian K. Williams, Power Pack, Times Mirror/Mosby College Publishing, 1986.

Mandell, Steven L., Introduction to Computers Using the Apple II, West Publishing Company (Different versions for IBM PC and TRS80), 1985.

Parker, Charles S., Understanding Computers and Data Processing: Today and Tomorrow, Holt, Rinehart, Winston, 1984.

Shelly, Gary B., and Thomas J. Cashman, Computer Fundamentals for the Information Age, Anaheim, 1984.

Wolff, Terris B., Microcomputer Applications: Using Small Systems Software, Boyd, Fraser, 1985.

INFORMATION SHEET

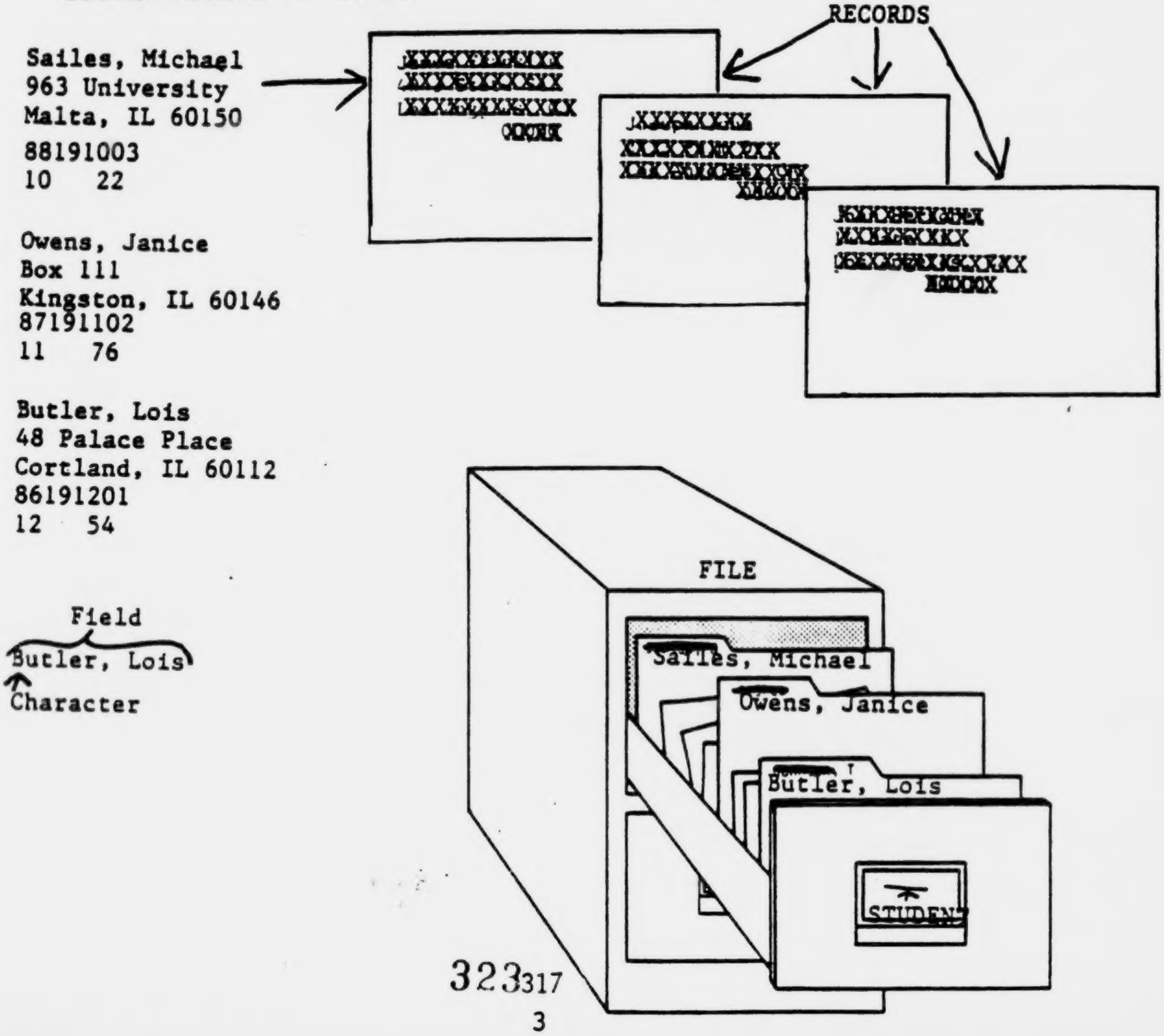
C 1.1

Data Base Management Systems Concepts and Terms

1. WHAT IS A DATA BASE?

A data base is an integrated collection of data organized in a manner that allows retrieval and use of that data by anyone needing it. Examples might include the following: filing cabinet, encyclopedia, dictionary, phone book, or a set of index cards for a term paper or debate notes.

A data base consists of one or more files of information. A _file_ is a collection of related records. A _record_ is made up of one or more related fields. A _field_ consists of one or more characters that define an element of data. A _character_ is a single digit, letter, or symbol. See illustration C 1.1A.


Sailes, Michael
963 University
Malta, IL 60150
88191003
10 22
Owens, Janice
Box 111
Kingston, IL 60146
87191102
11 76
Butler, Lois
48 Palace Place
Cortland, IL 60112
86191201
12 54
Field
Butler, Lois
Character
RECORDS
FILE
Sailes, Michael
Owens, Janice
Butler, Lois
STUDENT

2. WHAT IS A DATA BASE MANAGEMENT SYSTEM (DBMS)?

A data base management system is a special software package for storing and providing for easy access to data. Similar software packages are referred to as file managers. Usually a file manager works with one file only whereas a data base management system can integrate several files. Some examples of software packages of these types are DBASE I & II, INFOSTAR, RBASE, PERFECT FILER, PFS:FILE/PFS:REPORT, and IBM FILING ASSISTANT, IBM Reporting Assistant.

3. WHY USE A DATA BASE MANAGEMENT SYSTEM?

Data Base management eliminates the need for programming for simple data retrieval and reporting. It allows greater flexibility and ease in accessing data. The data, once defined, can be used for many different purposes; for example, a high school student data base could be used for mailing labels for all students, for a partial list such as seniors, an alpha list of all freshmen, or a list of National Honor Society members.

4. HOW IS A DATA BASE MANAGEMENT SYSTEM USED?

Most data base management systems allow the user to perform the following functions:

a. Create and define a data base structure
b. Enter data into the data base
c. Perform general file management functions of adding, deleting, and modifying records
d. Sort the data according to key fields
e. Select desired records according to user-defined criteria for screen display or printing
f. Generate desired reports easily and quickly

ACTIVITY SHEET

C 1.2

Identifying Data Base Concepts and Terms

The purpose of this activity is to determine whether or not you have developed a working knowledge of data base concepts and terms.

Part 1 - Select a term from the list below to answer questions 1 to 6.

data base
record
file
data base management system
field
character

1. A ________________ is a collection of related fields.

2. An integrated collection of data organized in manner which allows easy retrieval and use is a ________________________.

3. A collection of related records is a ______________________.

4. A ________________ is a single digit, letter, or symbol.

5. One or more characters that define an element of data is a ________________________.

6. A software package for storing, updating, and retrieving data is a ____.

Part 2 - Short Answer

7. List two advantages of using a data base management system.

8. List six common functions of a data base management system.

Activity Sheet Key

C 1.2

Identifing Data Base Concepts and Terms

Part 1 - Select a term from the list below to answer questions 1 to 6.

data base	data base management system
record	field
file	character

1. A __record__ is a collection of related fields.

2. An integrated collection of data organized in manner which allows easy retrieval and use is a __data base__.

3. A collection of related records is a __file__.

4. A __character__ is a single digit, letter, or symbol.

5. One or more characters that define an element of data is a __field__.

6. A software package for storing, updating, and retrieving data is a __data base management system__.

Part 2 - Short Answer

7. List two advantages of using a data base management system.

   a. eliminates need for programming
   b. allows easy access to data
   c. allows greater flexibility

8. List six common functions of a data base management system.

   a. create and define structure
   b. enter data
   c. add, delete, modify
   d. sort
   e. select
   f. print reports

INFORMATION SHEET

C 1.3

Data Base Glossary

When using a data base system, it is necessary that you understand the following terms:

ADDING RECORDS	the process of updating a file by keying additional records into the original file.
CHARACTER	a single digit, letter or symbol; the smallest unit of data.
DATA	a collection of unorganized facts that is not yet processed into information.
DATA BASE	a collection of interrelated data stored together with a minimum of repetition to serve multiple applications.
DATA BASE MANAGEMENT SYSTEMS	the software used for the management and retrieval of the data stored in a data base. A data base can usually access information from several files.
DELETING	the process of removing the data from a specific file or data base so that it can no longer be retrieved.
FIELD	a collection of related characters.
FILE	a collection of related records.
FILE MANAGER	software package that works with one file only; it cannot integrate files.
FILE MANAGEMENT	a software package which allows the user to create files, enter, edit, select, sort, and print records. A file management system generally uses only one file.
KEY FIELD	a field that is used as a basis for organizing and identifying the records of a file.
MODIFYING RECORDS	the process of changing the contents of an existing record in a file or data base.
RECORD	a collection of fields related to a specific unit of information.

INFORMATION SHEET C 1.3 (continued)

REPORTS	a defined set of data to be produced for informative use which can consist of headings and totals as well as detailed information.
RETRIEVAL	the process of accessing data from a data base for displaying or reporting purposes.
SELECTING	the process of locating specific records in a data base file.
SORTING	the process of arranging data into some desired order, either numerically or alphabetically, according to the contents of a specified field or fields.

ACTIVITY SHEET

C 1.4

Matching Data Base Terms with Definitions

The purpose of this activity is to determine whether or not you have learned how to match data base terms with definitions.

Write the letter of the corresponding definition from Part B to the left of each term in Part A.

PART A

____ 1. adding records
____ 2. data
____ 3. data base management system
____ 4. field
____ 5. key field
____ 6. modifying records
____ 7. sorting
____ 8. record
____ 9. data base
____ 10. deleting records
____ 11. file
____ 12. selecting
____ 13. report

PART B

A. A defined set of data to be displayed/printed for informative use which can consist of headings and totals as well as detailed information

B. The process of updating a file by keying additional information into the original file

C. The process in which records are examined to locate a specific record in a file or data base

D. A collection of interrelated data stored together with a minimum of repetition to serve multiple applications

E. The process of arranging data into some desired order either numerically or alphabetically, according to the contents of a specified field or fields

F. A collection of related characters

G. A collection of unorganized facts that is not yet processed into information

H. A collection of fields related to a specific unit of information

I. Changing the contents of existing records in a file or data base

ACTIVITY SHEET C 1.4 (continued)

J. A collection of related records

K. The software used for the management and retrieval of the data stored in a data base

L. The process of removing the data from a specific file or data base so that it can no longer be retrieved

M. One field that is used as a basis for organizing and identifying the records of a file

Activity Sheet Key

C 1.4

Matching Data Base Terms With Definitions

Write the letter of the corresponding definition from Part B to the left of each term in Part A.

PART A

B	1.	adding records	H	8.	record
G	2.	data	D	9.	data base
K	3.	data base management system	L	10.	deleting records
F	4.	field			
M	5.	key field	J	11.	file
I	6.	modifying records	C	12.	selecting
E	7.	sorting	A	13.	report

PART B

A. A defined set of data to be displayed/printed for informative use which can consist of headings and totals as well as detailed information

B. The process of updating a file by keying additional information into the original file

C. The process in which records are examined to locate a specific record in a file or data base

D. A collection of interrelated data stored together with a minimum of repetition to serve multiple applications

E. The process of arranging data into some desired order either numerically or alphabetically, according to the contents of a specified field or fields

F. A collection of related characters

G. A collection of unorganized facts that is not yet processed into information

H. A collection of fields related to a specific unit of information

I. Changing the contents of existing records in a file or data base

J. A collection of related records

Activity Sheet Key C 1.4 (continued)

K. The software used for the management and retrieval of the data stored in a data base

L. The process of removing the data from a specific file or data base so that it can no longer be retrieved

M. One field that is used as a basis for organizing and identifying the records of a file

WRITTEN EXAM

C 1

Identify and Define General Data Base Concepts and Terminology

The purpose of this exam is to determine whether or not you have understood the information on identifying and defining general data base concepts and terminology.

Each of the questions or incomplete statements is followed by several words or phrases. Choose the one that answers the question or completes the statement correctly. Place the letter associated with that choice (A, B, C, or D) in the numbered blank space on your answer sheet. To master this task, you must answer at least 11 out of 13 correctly, or 85%.

WRITTEN EXAM

C 1

Identify and Define General Data Base Concepts and Terminology

1. A collection of related records is called a

   A. field
   B. file
   C. character
   D. record

2. A collection of related characters is called a

   A. field
   B. file
   C. data base
   D. record

3. When processed on a computer, data is often organized as

   A. fields, records, and information
   B. fields, records, and data items
   C. records, files, and phrases
   D. fields, records, and files

4. The key field in a record

   A. allows the user to direct data entry to the end of the record
   B. can be used for organizing and identifying the records of a file
   C. is always the first field in a record
   D. is always the last field in a record

5. An integrated collection of data organized in a manner that allows for easy retrieval and reporting is

   A. a data base management system
   B. a data base
   C. a record
   D. a field

6. A software package that provides for easy file management, retrieval, and reporting is

   A. a data base management system
   B. an operating system
   C. a file retrieval and reporting system
   D. a data base

7. Which of the following is not an advantage of using a data base management system?

   A. eliminates the need for user programming
   B. allows for quick selection of data from a data base
   C. allows for easy report generation
   D. eliminates the need for entering data into a file

8. Which of the following best describes a file manager?

   A. a file manager can relate the data in several different files
   B. a file manager is the person in charge of the data base system
   C. a file manager works with data in a single file
   D. a file manager can be used to generate reports but only for a complete file

9. The process used to start a new data base file is called

   A. selecting
   B. sorting
   C. initializing
   D. creating

10. General file management functions are

   A. adding, deleting, modifying
   B. inserting, blocking, reviewing
   C. reforming, removing, reorganizing
   D. choosing, selecting, sorting

11. Arranging data in a certain order according to key fields is

   A. processing
   B. selecting
   C. modifying
   D. sorting

12. The process of choosing desired records for specific user-defined criteria is

   A. defined choice
   B. sorting
   C. selecting
   D. updating

13. With a data base management system, the user can quickly and easily generate a report that has been

    A. sorted
    B. modified
    C. updated
    D. all of the above

Written Exam Key

C 1

Identify and Define General Data Base Concepts and Terminology

1. A collection of related records is called a

   B. file

2. A collection of related characters is called a

   A. field

3. When processed on a computer, data is often organized as

   D. fields, records, and files

4. The key field in a record

   B. can be used for organizing and identifying the records of a file

5. An integrated collection of data organized in a manner which allows for easy retrieval and reporting is

   B. a data base

6. A software package that provides for easy file management, retrieval, and reporting is

   A. a data base management system

7. Which of the following is not an advantage of using a data base management system?

   D. eliminates the need for entering data into a file

8. Which of the following best describes a file manager?

   C. a file manager works with data in a single file

9. The process used to start a new data base file is called

   D. creating

10. General file management functions are

    A. adding, deleting, modifying

11. Arranging data in a certain order according to key fields is

    D. sorting

Written Exam Key C 1 (continued)

12. The process of choosing desired records for specific user-defined criteria is

    C. selecting

13. With a data base management system, the user can quickly and easily generate a report that has been

    D. all of the above

INFORMATION PROCESSING

Area: Data Base Management Systems

Learner Outcome C 2: Identify and Complete the Procedures for Loading the Data Base System Disk and for Formatting the Data Disk

Purpose: As a worker in the modern office, you will need to learn how to use a data base management system, to load the data base program disk, and to format a data disk.

Objective: Given an information and activity sheet, a microcomputer system, a DBMS package and documentation, you will identify basic system start-up procedures. You will then complete an activity sheet describing these procedures on your computer. You will perform related functions on your system. To master this task, you must score 4 out of 4 points accurately, or 100% on a performance checklist and at least 6 out of 7 points, or 86% on a written exam.

Estimated Class Time: 1 hour

Learner Outcome C 2

Identify and Complete the Procedures for Loading the Data Base System Disk and for Formatting the Data Disk

LEARNING STEPS

READ:	Information Sheet C 2.1, "Data Base System Start-Up Concepts and Terms."
COMPLETE:	Activity Sheet C 2.2, "Identify Concepts and Terms Associated with Data Base Management System Start Up."
READ:	Information about loading your data base system disk and preparing a data disk in your data base management system documentation and operator's manual. See your instructor.
COMPLETE:	Activity Sheet C 2.3, "Identify Data Base Start-Up Procedures for Your System."
COMPLETE:	Performance Product Checklist C 2 "Identify and Complete the Procedures for Loading the Data Base System Disk and for Formatting the Data Disk."
COMPLETE:	Written Exam C 2, "Loading the Data Base System Disk and Formatting the Data Disk."

RESOURCES

C 2

Dravillas, Paul, Steven Stilwell, and Brian K. Williams, Power Pack, Times Mirror/Mosby College Publishing, 1986.

Mandell, Steven L., Introduction to Computers Using the Apple II, West Publishing Company, (Different versions for IBM PC and TRS80), 1985.

Parker, Charles S., Understanding Computers and Data Processing: Today and Tomorrow, Holt, Rinehart, Winston, 1984.

Shelly, Gary B., and Thomas J. Cashman, Computer Fundamentals for the Information Age, Anaheim, 1984.

Wolff, Terris B., Microcomputer Applications: Using Small Systems Software, Boyd, Fraser, 1985.

EQUIPMENT/SOFTWARE/MATERIALS NEEDED

DOS (disk operating system) manual for your computer

User guide, tutorials, help features, and reference cards for your Data Base Management System software

A microcomputer system

A Data Base Management System package

A blank diskette or data diskette

INFORMATION SHEET

C 2.1

Data Base System Start-Up Concepts and Terms

Before using your data base management system, you need to identify some basic system start-up concepts and terms.

1. WHAT ARE START-UP PROCEDURES?

Generally speaking, to start up a system means to load the software package from disk into the memory of your computer. This procedure is commonly called "booting the system." Also, most data base systems will require the use of a data disk which must be prepared for use on your computer. This procedure is referred to as formatting or initializing a data disk.

2. WHAT HAPPENS WHEN I LOAD THE SYSTEM DISK?

Every computer must be told what to do by software. When you boot the system, you are loading software called the Operating System into memory which allows the user to issue commands to operate the computer. This operating system is commonly called "DOS" for Disk Operating System. Your DOS program may give you a prompt when it wants you to enter a command. To start up a data base management system from a prompt, you might have to enter a command. An example of this type of system is:

```
A> DBASE
```

In the example above "A >" is the prompt, and "DBASE" is the command that you type (your system might be different). At this point, another prompt might appear. A period, for example, is the DBASE prompt. An appropriate command would then be entered. This type of Data Base Management System is referred to as a "command-driven system."

Sometimes, a data base management software package is set up so that, when loaded, the operating system takes you directly to the data base management system prompt or menu. A menu is a list of choices that are displayed on the screen for you. You would select the appropriate choice by typing in the number of the selection or moving the cursor to the selection and pressing the return or enter key. An example of this type of menu-driven system is shown on the next page:

INFORMATION SHEET C 2.1 (continued)

```
                PFS FUNCTION MENU

          1.  Design File     4.  Search/Update
          2.  Add Forms       5.  Print
          3.  Copy            6.  Remove
                              7.  Exit

             SELECTION NUMBER: ____
             FILE NAME: SAMPLE
```

3. WHAT IS INVOLVED IN FORMATTING A DATA DISK?

Formatting or initializing a data disk simply means preparing a new disk for use by the DBMS on your computer. The procedures for doing this depend on the operating system of your computer. Generally, there is a simple command such as "FORMAT" for accomplishing this. Some DBMS or file managers require a different disk for each file; others allow multiple files or data bases on a single disk.

There may be a general file utility program as part of your data base manager. Usually this type of program is menu-driven. The user simply chooses the format or initializes the function from the menu. Check your software manual to determine whether or not you must format your data disk using the Disk Operating System (DOS) diskette or whether there is a file utility program in your data base software.

4. WHAT IS SYSTEM DOCUMENTATION?

It is important that you recognize the importance of using software system documentation. System documentation refers to the user manuals that are supplied with a software package. There may be operator's manuals, tutorials, help features on the computer, and reference cards that will help you to learn and use a software package. You should refer to the documentation often when first learning a new system.

ACTIVITY SHEET

C 2.2

Identify Concepts and Terms Associated with Data Base Management System Start Up

The purpose of this activity is to determine whether or not you have mastered the concepts and terms associated with data base management system start up.

booting
DOS
prompt
initialize
data base management system
menu
disk operating system
format

Use a term or terms from the list above for each fill-in question.

1. To prepare a data disk for use on a particular computer is to ______________ or ________________ the disk.
2. Loading system software into memory from a disk is referred to as ___________________________.
3. Software that allows a user to perform file management utilities such as formatting a disk is called the ______________ or ___________________.
4. A character or word that appears on the screen when a command is to be entered is called a ______________________.
5. A list of user choices that appears on the screen is referred to as a _________________________.
6. An example of a type of software program that would be loaded and used for management and retrieval of data is a _____________________________.

Activity Sheet Key

C 2.2

Identify Concepts and Terms Associated with DBMS Start up

booting
DOS
prompt
initialize
data base management system
menu
disk operating system
format

Use a term or terms from the list above for each fill-in question.

1. To prepare a data disk for use on a particular computer is to format or initialize the disk.
2. Loading system software into memory from a disk is referred to as booting.
3. Software that allows a user to perform file management utilities such as formatting a disk is called the DOS or disk operating system.
4. A character or word that appears on the screen when a command is to be entered is called a prompt.
5. A list of user choices that appears on the screen is referred to as a menu.
6. An example of a type of software program that would be loaded and used for management and retrieval of data is a Data Base Management System.

ACTIVITY SHEET

C 2.3

Identify Data Base Start-Up Procedures for Your System

The purpose of this activity is to determine whether or not you are able to identify data base start-up procedures.

1. What type of computer are you using?

2. What is the name of the Data Base Management System package that you are using?

3. Describe how to boot the system.

4. Describe how to format a data disk on your system.

5. Is your Data Base Management System a menu-driven or command-driven system?

Activity Sheet Key

C 2.3

Identify Data Base Start-Up Procedures for Your System

These answers will vary depending upon the type of computer being used by the student.

AREA: Data Base Management Systems

LEARNER OUTCOME: Identify and Complete the Procedures for Loading the Data Base System Disk and for Formatting the Data Disk

LEARNER OUTCOME: C 2

PERFORMANCE/PRODUCT CHECKLIST

STUDENT ______________________________ PERFORMANCE ATTEMPT 1 2 3 4

EVALUATOR ____________________________ DATE ______________________

EVALUATION SITE ____________________

TERMINAL PERFORMANCE OBJECTIVE:

Given a microcomputer system and a Data Base Management System package and documentation, you will complete an activity sheet describing these procedures on your computer. You will perform related functions on your system.

DIRECTIONS TO THE STUDENT:

Before attempting this task for mastery, carefully review this checklist. You will be evaluated on the basis of this checklist. When you feel you are ready for evaluation, contact your instructor. You must complete your performance within 15 minutes and must score at least 4 out of 4 points, or 100%. Critical items are marked with an asterisk (*). These items must be completed satisfactorily.

DIRECTIONS TO THE EVALUATOR:

The student will contact you when ready for evaluation. The student must complete the performance within 15 minutes and must score 4 out of 4 points, or 100%. All items marked with an asterisk (*) must be completed satisfactorily.

PERFORMANCE/PRODUCT CHECKLIST

C 2

Identify and Complete Procedures for Loading the Data Base System Disk and for Formatting the Data Disk

CRITICAL ITEMS	ITEMS TO BE OBSERVED	RATING YES/NO
*1.	Insert disk, power up computer and boot the data base management system program. (Note: sequence may vary).	___ ___
*2.	Identify the name of the Data Base Management System that you are using.	___ ___
*3.	Identify whether the DBMS is menu driven or command driven.	___ ___
*4.	Insert and format a data disk. (Note: sequence may vary).	___ ___

TOTAL POINTS ___4___

POINTS NECESSARY ___4___

SCORE ______

*Procedures will be specific to the hardware and software used.

PERFORMANCE/PRODUCT CHECKLIST

C 2

Instructions

1. Observe the name of the data base management system disk.
2. Determine when the data disk should be formatted:

   Before loading the data base management system program--use DOS disk

   After loading the data base management system program--use data base management system utility formatting program
3. Insert disk and load the data base management disk (Note: sequence may vary).
4. Insert and format a data disk. (Note: sequence may vary).

WRITTEN EXAM

C 2

Loading the Data Base System Disk and Formatting the Data Disk

The purpose of this exam is to determine whether or not you can identify and complete the procedures for loading the data base system disk and for formatting the data disk.

Each of the questions or incomplete statements below is followed by several words or phrases. Choose the one which best answers the question or completes the statement correctly. Place the letter associated with that choice (a, b, c, or d) in the numbered blank space on your ANSWER SHEET. To master this task, you must answer at least 6 out of 7 statements correctly, or 86% on a written exam.

WRITTEN EXAM

C 2

Loading the Data Base System Disk and Formatting the Data Disk

1. The term "booting" refers to

   a. formatting a data disk
   b. loading the operating system into memory
   c. initializing a data disk
   d. turning on the computer

2. What does DOS stand for?

   a. data on system
   b. delete old system
   c. disk operating system
   d. dynamic operating system

3. An indicator that implies that the user is to enter a command is called a

   a. menu
   b. prompt
   c. cursor
   d. format

4. A list of items that is displayed on the screen for the user to choose from is a

   a. menu
   b. prompt
   c. cursor
   d. format

5. The type of software that you loaded in this guide is called a

   a. word processor
   b. spreadsheet program
   c. data base management system
   d. graphics package

6. To use a software package properly, you need to frequently refer to the

   a. dictionary
   b. documentation
   c. encyclopedia
   d. programmer

7. A data base management system is normally either

   a. cursor controlled or DOS driven
   b. command driven or prompt driven
   c. program driven or command driven
   d. menu driven or command driven

Written Exam Key

C 2

Loading the Data Base System Disk and Formatting the Data Disk

1. The term "booting" refers to

   b. loading the operating system into memory

2. What does DOS stand for?

   c. Disk Operating System

3. An indicator that implies that the user is to enter a command is called a

   b. prompt

4. A list of items that is displayed on the screen for the user to choose from is a

   a. menu

5. The type of software that you loaded in this guide is called a

   c. data base management system

6. To properly use a software package, you need to frequently refer to the

   b. documentation

7. A data base management system is normally either

   d. menu driven or command driven

INFORMATION PROCESSING

Area: Data Base Management Systems

Learner Outcome C 3: Create a Data Base, Define and Enter the Data Base Structure

Purpose: As a worker in the modern office, you will need to know two very important initial steps to be followed in using a data base management system. It is necessary that you can name the file and decide on the structure or format to be used in creating the data base.

Objective: Given a microcomputer system, a data base management system package, and documentation, you will create and enter a data base structure. To master this learner outcome, you must score 5 out of 5, or 100% on a performance/product checklist and score 9 out of 9, or 100% on a written exam.

Estimated Class Time: will vary from class to class

Learner Outcome C 3

Create a Data Base, Define, and Enter the Data Base Structure

LEARNING STEPS

READ:	Information Sheet C 3.1, "Data Base Management Concepts and Terms."
READ:	Information on data base concepts and terms in one or more of the resources.
COMPLETE:	Activity Sheet C 3.2, "Identification of Data Base Structure and Terms."
READ:	Data Base program manual. (See your instructor).
COMPLETE:	Performance/Product Checklist C 3, "Create a Data Base, Define, and Enter the Data Base Structure." Contact your instructor.
COMPLETE:	Written Exam C 3, "Create a Data Base, Define, and Enter the Data Base Structure." Contact your instructor.

RESOURCES

C 3

Dravillas, Paul, Steven Stilwell, and Brian K. Williams, Power Pack, Times Mirror/Mosby College Publishing, 1986.

Mandell, Steven L., Introduction to Computers Using the Apple II, West Publishing Company (Different versions for IBM PC and TRS80), 1985.

Parker, Charles S., Understanding Computers and Data Processing: Today and Tomorrow, Holt, Rinehart, Winston, 1984.

Shelly, Gary B., and Thomas J. Cashman, Computer Fundamentals for the Information Age, Anaheim, 1984.

Wolff, Terris B., Microcomputer Applications: Using Small Systems Software, Boyd, Fraser, 1985.

EQUIPMENT/MATERIALS/SOFTWARE NEEDED

DOS (disk operating system) manual for your computer

User guide, tutorials, help features, and reference cards for your Data Base Management System software

A microcomputer system

A Data Base Management System package

A blank diskette or data diskette

INFORMATION SHEET

C 3.1

Data Base Management Concepts and Terms

1. DETERMINING DISKETTE STORAGE AND SIZE OF FILE

One of the most important considerations in creating and designing a data base management system is determining the storage capacity of the diskette and estimating the number of records to be entered in the file. Check with your instructor and /or data base management system manual to insure that there is enough storage room on your diskette.

2. NAMING THE DATA BASE MANAGEMENT FILE

A data base management system or file system stores information into a file(s). The file must be given a name. See your instructor or data base manual for specific filename rules.

3. DESIGNING THE FILE STRUCTURE

File organization involves placing your data records into fields (which may be called attributes) and determining key fields. The user must indicate what each field is to be called, and, in some cases, the type of data each field will contain. This organization is called the file structure. How you define the fields of your data base is the single most important factor affecting the successful use of the data base management system program. Check with your instructor for field name (attribute name) rules.

4. FILE STRUCTURE TERMINOLOGY

File Structure	organization and creation of the data records into fields.
Item	the basic element of a form consisting of the name or category followed by an area where data is to be entered.
Data Base Management System Form	a combination of items in any order. User creates the form by entering the fields (attributes).

Alpha Fields	contain letters of the alphabet or spaces. Some data base management packages refer to alpha fields as character fields. One example would be John Doe.
Numeric Fields	always contain numbers. The fields may be used in computations and may contain decimal positions. An example would be "731" or "533.15."
Alphanumeric Fields	contain mainly letters of the alphabet. Fields may contain numbers and symbols; however, numbers are not used in computations. An example would be "235 Lawndale Avenue." Alphanumeric fields may also be referred to as character fields.
Logical Fields	represent one of two values: TRUE OR FALSE (Some systems use YES or NO). The actual field contains alphanumeric data; however, the information represents a condition. A sample entry in a logical field would be either "T" or "F" ("Y" or "N").

5. VIEWING THE FILE STRUCTURE

Depending upon the data base management system package used, the completed file structure form is visible as you key in the fields or attributes; OR a special command may be used to view the form after the file structure has been completed. See your instructor or data base management system manual for the "Display structure" command(s).

6. EXITING THE FILE STRUCTURE

See your instructor or data base management system manual for "Exiting the File structure" command(s).

ACTIVITY SHEET

C 3.2

Identification of Data Base Structure and Terms

The purpose of this activity is to determine whether or not you have understood the structure of data base and related terms.

Fill in the blanks.

1. What is the storage capacity of your data diskette?

   ____

2. How many records will be entered into your data base file?

   ____

Match the term in Part A with the description in Part B.

Part A		Part B	
3.	logical field ___________	a.	contains numbers which can be used in computations
4.	data base structure ___________	b.	data field representing a condition which is answered True or False (Yes or No)
5.	alpha field ___________	c.	refers to a field or attribute
6.	numeric field ___________	d.	organization of data records into fields which create a form
7.	item ___________	e.	contains letters of the alphabet and spaces
8.	alphanumeric _______	f.	contains numbers, letters or symbols

ACTIVITY SHEET C 3.2 (continued)

Using the following information and the data base system manual, WRITE the filename, data structure layout, and exit commands which will be used to create your data base.

FILENAME: LABELS

DATA STRUCTURE INFORMATION:

FIELD NAME	TYPE OF DATA	FIELD SIZE
NAME	ALPHA	20
ADDRESS	ALPHANUMERIC	20
CITY	ALPHANUMERIC	20
CODE	NUMERIC	2

9. What is your filename? ______________________________

10. Plan and write your field names (attributes/items) and data types. Follow the exact format that is given in your data base manual.

DATA STRUCTURE SCREEN

11. What is the command for exiting the data base structure form?

____

Directions: Using the information contained in Items 9 through 11, CREATE BY KEYING a data base structure on your microcomputer system.

Activity Sheet Key

C 3.2

Identification of Data Base Structure and Terms

Fill in the blanks.

1. What is the storage capacity of your data diskette?

Diskette dependent

2. How many records will be entered into your data base file?

Application dependent

Match the term in Part A with the description in Part B.

Part A			Part B
3. logical field	B	a.	contains numbers which can be used in computations
4. data base structure	D	b.	data field representing a condition which is answered True or False (Yes or No)
5. alpha field	E	c.	refers to a field or attribute
6. numeric field	A	d.	organization of data records into fields which create a form
7. item	C	e.	contains letters of the alphabet and spaces
8. alphanumeric	F	f.	contains numbers, letters or symbols

Activity Sheet Key C 3.2 (continued)

Using the following information and the data base system manual, complete the filename, data structure layout, and exit commands which would be used to create your data base.

FILENAME: LABELS

DATA STRUCTURE INFORMATION:

FIELD NAME	TYPE OF DATA	FIELD SIZE
NAME	ALPHA	20
ADDRESS	ALPHANUMERIC	20
CITY	ALPHA	20
CODE	NUMERIC	2

9. What is your filename? LABELS

10. Plan and write your field names (attributes/items) and data types. Follow the exact format that is given in your data base manual.

DATA STRUCTURE SCREEN

NAME:	ALPHA
ADDRESS:	ALPHANUMERIC
CITY:	ALPHA
CODE:	NUMERIC

11. What is the command for exiting the data base structure form? PACKAGE DEPENDENT

Directions: Using the information contained in Items 9 through 11, CREATE BY KEYING a data base structure on your microcomputer system.

AREA: Data Base Management System

LEARNER OUTCOME: Create a Data Base, Define, and Enter the Data Base Structure

LEARNER OUTCOME: C 3

PERFORMANCE/PRODUCT CHECKLIST

STUDENT ______________________________ PERFORMANCE ATTEMPT 1 2 3 4

EVALUATOR ____________________________ DATE ______________________

EVALUATION SITE ____________________

TERMINAL PERFORMANCE OBJECTIVE:

Given a microcomputer system, data base managment system software package, and documentation, you will create and enter a data base format or structure.

DIRECTIONS TO THE STUDENT:

Before attempting this task for mastery, carefully review this checklist. You will be evaluated on the basis of this checklist. When you feel you are ready for evaluation, contact your instructor. You must complete your performance within 30 minutes and must score at least 5 out of 5 points, or 100%. Critical items are marked with an asterisk (*). These items must be completed satisfactorily.

DIRECTIONS TO THE EVALUATOR:

The student will contact you when ready for evaluation. The student must complete the performance within 30 minutes and must score 5 out of 5 points, or 100%. All items marked with an asterisk (*) must be completed satisfactorily.

PERFORMANCE/PRODUCT CHECKLIST

C 3

Create a Data Base, Define, and Enter the Data Base Structure

Using sample data base called STUDENT (Performance Checklist C 3), plan and CREATE BY KEYING a data base structure on your microcomputer system. It is assumed that the data base management system package has been previously loaded into the microcomputer system. Contact your instructor for evaluation.

CRITICAL ITEMS	ITEMS TO BE OBSERVED	RATING YES/NO
*1.	Key the data base file name.	___ ___
*2.	Enter the command to create the data base structure layout.	___ ___
*3.	Key and save data base field names and data types.	___ ___
*4.	Exit the data base file structure.	___ ___
*5.	Display the data base file structure.	___ ___

TOTAL POINTS 5

POINTS NECESSARY 5

SCORE ______

PERFORMANCE/PRODUCT CHECKLIST

SAMPLE DATA BASE FILE

C 3

Create a Data Base, Define, and Enter the Data Base Structure

FILENAME: STUDENT

DATA STRUCTURE INFORMATION

FIELD NAME	TYPE OF DATA	FIELD SIZE	DEC POS
STUDENT NO	ALPHANUMERIC	08	__
NAME	ALPHA	20	__
ADDRESS	ALPHANUMERIC	20	__
CITY	ALPHA	10	__
STATE	ALPHA	02	__
ZIP	NUMERIC	05	__
GRADE	NUMERIC	02	__
CLUBS	NUMERIC	02	__
SPORTS	NUMERIC	02	__
TOTAL FEES	NUMERIC	05	02

WRITTEN EXAM

C 3

Create a Data Base, Define and Enter the Data Base Structure

On your answer sheet write "T" if the statement is true; write "F" if the statement is false. To master this task, you must answer 9 out of 9, or 100%.

WRITTEN EXAM

C 3

Create a Data Base, Define, and Enter the Data Base Structure

1. _____ A data base management system file must have a filename.

2. _____ File organization involves sorting all records alphabetically and numerically.

3. _____ Decimal positions can be indicated in alpha fields.

4. _____ A logical field represents a true or false condition.

5. _____ A data base management structure form is created by entering the field names.

6. _____ An alphanumeric field can be used for computations.

7. _____ A key field uniquely identifies a record within a file.

8. _____ The terms "attribute name" and "item name" may also mean the same as "field name."

9. _____ Calculations can be performed on numeric fields.

Written Exam Key

C 3

Create a Data Base, Define, and Enter the Data Base Structure

1. T A data base management system file must have a filename.

2. F File organization involves sorting all records alphabetically and numerically.

3. F Decimal positions can be indicated in alpha fields.

4. T A logical field represents a true or false condition.

5. T A data base management structure form is created by entering the field names.

6. F An alphanumeric field can be used for computations.

7. T A key field uniquely identifies a record within a file.

8. T The terms "attribute name" and "item name" may also mean the same as "field name."

9. T Calculations can be performed on numeric fields.

INFORMATION PROCESSING

Area: Data Base Management Systems

Learner Outcome C 4: Enter and Edit Data Using the Defined Screen Format

Purpose: As a worker in the modern office, you will need to know how to use a data base management system (DBMS). You must be able to enter and edit the information in the defined screen format.

Objective: Given a microcomputer system, a data base management system package, and documentation, you will enter and edit the information in the defined screen format. To master this task, you must score 6 out of 6, or 100% on a performance/product checklist and score at least 11 out of 12, or 92% on a written examination.

Estimated Class Time: will vary from class to class

Learner Outcome C 4

Enter and Exit Data Using the Defined Screen Format

LEARNING STEPS

STUDY:	Information Sheet C 4.1, "Terms and Definitions."
COMPLETE:	Activity Sheet C 4.2, "Terms and Definitions."
REFER TO:	Information Sheet C 2.1, "Data Base System Start-Up Concepts and Terms."
READ:	Information Sheet C 4.3, "Entering and Editing Data in a Defined Screen Format."
COMPLETE:	Activity Sheet C 4.4, "Enter and Exit Data Using the Defined Screen Format."
COMPLETE:	Performance/Product Checklist C 4, "Enter and Exit Data Using the Defined Screen Format."
COMPLETE:	Written Examination C 4, "Enter and Edit Data Using the Defined Screen Format."

RESOURCES

C 4

Dravillas, Paul, Steven Stilwell, and Brian K. Williams, Power Pack, Times Mirror/Mosby College Publishing, 1986.

Mandell, Steven L., Introduction to Computers Using the Apple II, West Publishing Company (Different versions for IBM PC, and TRS80), 1985.

Parker, Charles S., Understanding Computers and Data Processing: Today and Tomorrow, Holt, Rinehart, Winston, 1984.

Shelly, Gary B., and Thomas J. Cashman, Computer Fundamentals for the Information Age, Anaheim, 1984.

Wolff, Terris B., Microcomputer Applications: Using Small Systems Software, Boyd, Fraser, 1985.

EQUIPMENT/SOFTWARE/MATERIALS NEEDED

DOS (Disk Operating System) manual for your computer

User guide, tutorials, help features, and reference cards for your data base management system software

A microcomputer system

A data base management system or file management software package

A blank diskette or data diskette

INFORMATION SHEET

C 4.1

Terms and Definitions

When using a data base system, it is necessary that you understand the following terms:

ADD or APPEND	command that allows data to be entered into a record.
DISPLAY	command used to show the file on the screen (LIST may also be used for this purpose).
EDITING	the process of checking for the accuracy of data.
ENTER	to key in data, or a key to enter data.
EXIT	a term that usually means to leave the program or system.
FIELD	a unit of data within a record. A field has one or more characters. Example: The student number in Activity Sheet C 4.4 is a field.
FILE	a collection of one or more records that are usually related in some way. Example: All the students' records on Activity Sheet C 4.3 are a file.
LOAD	the process of entering the program into the computer memory.
MENU	a list of options within a program that may be used to perform certain functions on the computer.
RECORD	a collection of field related to a specific unit of information. Example: The student record of Carmen Flores refers to all the information given about that student.
RETRIEVE	to find; to bring back. To retrieve information; to bring it out of a file.
SYSTEM LOCK	a term that means that nothing will operate in the system.

ACTIVITY SHEET

C 4.2

Terms and Definitions

The purpose of this activity is to determine whether or not you know data base terms.

In your own words, define the following terms:

RETRIEVE

SYSTEM LOCK

FILE

ENTER

EXIT

RECORD

FIELD

ADD/APPEND

EDITING

ACTIVITY SHEET C 4.2 (continued)

DISPLAY

MENU

LOAD

section in your data base management system manual, or ask your instructor for help. To put your data base in report format, you may need to use additional software with some data base management system packages.

7. How do you get OUT of the program?

It is extremely important that you exit your program in the correct manner. If you do not, you may delete all of your files. Refer to your data base management manual for the proper EXIT procedure, or contact your instructor.

ALWAYS REFER TO YOUR DATA BASE MANAGEMENT SYSTEM MANUAL OR CONTACT YOUR INSTRUCTOR WHEN YOU ARE NOT SURE OF HOW TO COMPLETE A PROCEDURE!

ACTIVITY SHEET

C 4.4

Enter and Edit Data Using the Defined Screen Format

1. Enter the following data into the data base you created for Performance/Product Checklist C 3. Output will vary depending on the software used.

2. Save the records keyed.

3. Using the print menu-selection or the print-command, produce a paper copy of the entered records.

DATA TO BE ENTERED INTO THE FILE

FILENAME: STUDENT

STUDENT NO	NAME	ADDRESS	CITY	ST	ZIP	GRADE	CLUBS	SPORTS	FEES
86191205	Curry Wilma	283 Oak Street	Malta	IL	60150	12	01	23	3[illegible]
86191205	Harder Jaci	412 Holly Drive	DeKalb	IL	60115	12	55		25.80
87191104	Vanderwall Tim	101 Wimbledon	Sycamore	IL	60178	11	01	23	40.60
87191007	Williamson Emma	560 DeKalb Avenue	Sycamore	IL	60178	10	55		25.50
86191008	Marvelinski Captain	910 Horace Road	Cortland	IL	60112	10		23	30.70
86191202	Owens Janice	Box 111	Kingston	IL	60148	12	77	55	36.50
87191109	Robinson JSan	333 Baseline Road	Kingston	IL	60148	11	54	23	33.40
88191110	Kepka Margery	4228 Barb Blvd.	DeKalb	IL	60115	11	55	23	35.50
88191111	Brownstein Dorothy	12 Wonder Way	Cortland	IL	60112	11	55		22.90
88191003	Sailes Michael	963 University	Malta	IL	60150	10	01	22	38.50
86191201	Butler Lois	48 Palace Place	Cortland	IL	60112	12	54		33.90
87191112	Pekar Margery	101 Easy Street	Malta	IL	60150	11	76		36.40
87191113	Flores Carmen	21 Hatfield Avenue	DeKalb	IL	60115	11	01	54	42.90
86191214	Valente Oscar	415 South Fourth	DeKalb	IL	60115	12	76	22	38.75

CODE FOR EXTRACURRICULAR ACTIVITIES

National Honor Society	01
Football	22
Basketball	23
Theater	54
Debate	55
Spanish Club	76

AREA: Data Base Management Systems

LEARNER OUTCOME: Enter and Edit Data Using the Defined Screen Format

LEARNER OUTCOME: C 4

PERFORMANCE/PRODUCT CHECKLIST

STUDENT ______________________________ PERFORMANCE ATTEMPT 1 2 3 4

EVALUATOR ____________________________ DATE ____________________

EVALUATION SITE ______________________

TERMINAL PERFORMANCE OBJECTIVE:

Given a microcomputer system, data base management system software package, and documentation, you will enter and edit the information in the defined screen format.

DIRECTIONS TO THE STUDENT:

Before attempting this task for mastery, carefully review this checklist. You will be evaluated on the basis of this checklist. When you feel you are ready for evaluation, contact your instructor. You must complete your performance within 30 minutes and must score at least 6 out of 6 points, or 100%. Critical items are marked with an asterisk (*). These items must be satisfactorily completed.

DIRECTIONS TO THE EVALUATOR:

The student will contact you when ready for evaluation. The student must complete the performance within 30 minutes and must score 6 out of 6 points, or 100%. All items marked with an asterisk (*) must be completed satisfactorily.

PERFORMANCE/PRODUCT CHECKLIST

C 4

Enter and Edit Data Using the Defined Screen Format

CRITICAL ITEMS	ITEMS TO BE CHECKED OR OBSERVED	RATING YES/NO
* 1.	Loaded the file?	___ ___
* 2.	Entered records?	___ ___
* 3.	Displayed the file on the screen?	___ ___
* 4.	Saved the file?	___ ___
* 5.	Printed the file?	___ ___
* 6.	Exited the program?	___ ___

TOTAL POINTS 6

POINTS NEEDED 6

SCORE ______

PERFORMANCE/PRODUCT CHECKLIST

C 4

Identify and Complete Procedures for Entering and Editing Data Using the Defined Screen Format

Use the previously created data base file called LABELS (Activity Sheet C 3.2).

1. Load the data base management system software.
2. Using menu selections or commands, select the ENTER RECORDS mode.
3. Key records using the sample data base file LABELS.
4. Save the entered records.
5. Print the entered records.

SAMPLE DATA BASE FILE LABELS

NAME	ADDRESS	CITY	CODE
Mitchell, John	240 N. Clark	Chicago, IL 60632	14
Myers, Susan	1115 W. 18th St.	DeKalb, IL 60115	03
Hunter, Joanne	216 Maywood	Cortland, IL 60112	12
Chavez, Maria	2114 S. Ashland	Chicago, IL 60608	20
Nash, Darryl	334 Bond Ave.	Kingston, IL 60148	14
Ramirez, Lois	810 S. Mound	Sycamore, IL 60178	05
Green, Billie	3346 N. Kensington	Chicago, IL 60612	02
Digsby, Monroe	712 E. 111th St.	Chicago, IL 60637	08
Conroy, Matthew	400 N. Honore	Cortland, IL 60112	15
Anderson, Mona	554 W. College	Sycamore, IL 60178	13

WRITTEN EXAM

C 4

Enter and Edit Data Using the Defined Screen Format

The purpose of this exam is to determine whether or not you can enter and edit data using the defined screen format.

Choose the term that best defines the statement. Place the letter associated with that term in the numbered blank on your answer sheet. To master this task, you must answer 11 out of 12 or 92% on a written exam.

WRITTEN EXAM

C 4

Enter and Edit Data Using the Defined Screen Format

Place the letter of the correct term next to the definition. The list of terms is listed below.

TERMS

A. retrieve
B. file
C. save
D. menu
E. exit
F. name
G. load
H. record
I. system lock
J. editing
K. add/append
L. field
M. edit or search/update
N. print
O. enter/return
P. display/list

____ 1. A common command used to enter data into a file in a data base

____ 2. The key which places the command or data into the memory of the computer

____ 3. The command used to leave a program

____ 4. The command which shows the file on the screen

____ 5. The command which allows you to correct an entry in a file

____ 6. The process of entering the program into the computer memory

____ 7. A list of options within a program that may be used to select functions to be performed on the computer

____ 8. To find information or bring it from a file to the screen

____ 9. A unit of data within a record made up of one or more characters

____ 10. The process of checking for the accuracy of data

____ 11. A collection of one or more records that are usually related in some way

____ 12. Command used to place the file permanently in storage

Written Exam Key

C 4

Enter and Edit Data Using the Defined Screen Format

Place the letter of the correct term next to the definition. The list of terms is listed below.

TERMS

A. retrieve
B. file
C. save
D. menu
E. exit
F. name
G. load
H. record
I. system lock
J. editing
K. add/append
L. field
M. edit or search/update
N. print
O. enter/return
P. display/list

_K_ 1. A common command used to enter data into a file in a data base

_O_ 2. The key which places the command or data into the memory of the computer

_E_ 3. The command used to leave a program

_P_ 4. The command which shows the file on the screen

_M_ 5. The command which allows you to correct an entry in a file

_G_ 6. The process of entering the program into the computer memory

_D_ 7. A list of options within a program that may be used to select functions to be performed on the computer

_A_ 8. To find information or bring it from a file to the screen

_L_ 9. A unit of data within a record made up of one or more characters

_J_ 10. The process of checking for the accuracy of data

Written Exam C 4 Key (continued)

_B 11. A collection of one or more records that are usually related in some way

_C 12. Command used to place the file permanently in storage

INFORMATION PROCESSING

Area:	Data Base Management Systems
Learner Outcome C 5:	Use Simple Search or Query Commands to Select Information from a Data Base for Displaying or Printing
Purpose:	As a worker in the modern office, you will need to know how to select individual records out of a data base according to search criteria that you define.
Objective:	Given a microcomputer system, a Data Base Management Systems package, and documentation, you will identify concepts and terms associated with searching a data base. You will perform the search procedures on your system. To master this task, you must score 5 out of 5, or 100% on a performance checklist and 6 out of 7, or 86% on a written exam.

Estimated Class Time: 2 hrs.

Learner Outcome C 5

Use Simple Search or Query Commands to Select Information from a Data Base for Displaying or Printing

LEARNING STEPS

READ:	Information Sheet C 5.1, "Data Base Concepts and Terms Associated with Searching."
COMPLETE:	Activity Sheet C 5.2, "Identify Data Base Concepts and Terms Associated with Searching."
READ:	Data Base software package manual material related to searching a file or data base. See your instructor.
COMPLETE:	Activity Sheet C 5.3, "Identify Data Base Search Commands For Your System."
COMPLETE:	Performance/Product Checklist C 5, "Use Simple Search or Query Commands to Select Information From a Data Base for Displaying or Printing." See your instructor.
COMPLETE:	Written Exam C 5, "Use Simple Search or Query Commands to Select Information From a Data Base for Displaying or Printing." See your instructor.

RESOURCES

C 5

Dravillas, Paul, Steven Stilwell, and Brian K. Williams, *Power Pack*, Times Mirror/Mosby College Publishing, 1986.

Mandell, Steven L., *Introduction to Computers Using the Apple II*, West Publishing Company (Different versions for IBM PC, and TRS80), 1985.

Parker, Charles S., *Understanding Computers and Data Processing: Today and Tomorrow*, Holt, Rinehart, Winston, 1984.

Shelly, Gary B., and Thomas J. Cashman, *Computer Fundamentals for the Information Age*, Anaheim, 1984.

Wolff, Terris B., *Microcomputer Applications: Using Small Systems Software*, Boyd, Fraser, 1985.

EQUIPMENT/SOFTWARE/MATERIALS NEEDED

DOS (Disk Operating System) manual for your computer

User guide, tutorials, help features, and reference cards for your Data Base Management System software

A microcomputer system

A Data Base Management System software package

A blank diskette or data diskette

INFORMATION SHEET

C 5.1

Data Base Concepts and Terms Associated with Searching

1. WHY IS SEARCHING NECESSARY?

One of the advantages of a data base management system is the ease of selecting individual records according to various search criteria. Searching involves looking through the file to find the record or records that meet some logical condition. Searching is helpful in locating records for displaying, printing, or updating. The search procedure is often combined with the report, edit, or delete functions because often you would want to perform these functions on a subset of data that has been selected from the overall file. The use of a Data Base Management System to search for and select information out of a file is called "query processing." Other terms that would apply are select, find, locate, match or list.

2. HOW IS A SEARCH PERFORMED?

Often, a search is carried out by defining criteria which become the scope of the search. Logical conditions are used to define this scope. A logical condition or group of conditions is called an expression, which can be evaluated as true or false. The relational operators, =, <, >, <=, <>, or >= or the corresponding verbal expressions equal to, less than, greater than, less than or equal to, not equal to, and greater than or equal to are frequently used to create search expressions. Logical operators NOT, AND, and OR also may be used to combine expressions to define the search range. For example, to list all students from DeKalb who are seniors, you might type a command such as:

```
LIST FOR CITY = 'DEKALB'.AND.CLASS = 12
```

Sometimes a search is performed on a menu-driven data base (command-driven data base) by typing either the actual item being searched for or a substring of the item into the field name area on a defined screen. For example, to find the first record in the student file with the name OWENS, JANICE, you would type that name into the name field on the search screen:

```
NAME:  OWENS JANICE
```

Many systems of this type allow you to specify AND, NOT, and OR functions from a menu.

When performing a search for an item, you should type in the data you are searching for in the same format as it appears in the file. For example, if a name has a space separating last and first name, enter your search command the same way.

Most systems allow you to search data, such as a name, by specifying a partial string of characters within the name field. This is called a substring. For example, instead of using the whole name OWENS JANICE, you could just search for OWENS.

There are many different ways that a search is carried out, depending on the particular software package. You must read your system documentation to find out how searching works in your situation. The methodology used to search a data base is referred to as its query language. Most systems today require symbolic commands to perform queries. In the future, many systems will allow natural language inquiries, which will simplify the search and select process. For example, you would be able to type a question such as, "Who are the seniors from DeKalb?"

ACTIVITY SHEET

C 5.2

Identify Data Base Concepts and Terms Associated with Searching

The purpose of this activity is to determine whether or not you can identify data base concepts and terms associated with searching.

Select the term that best completes the following statements:

searching
query language
deleting
relational operators
natural language
logical operators
updating

1. Symbols such as >, =, and <, which are used to define search criteria, are called ______________________________.
2. Selecting records from a file according to defined criteria is called ______________________________.
3. Usually, a search is performed in order to display or print desired records or to find records for ______________ or ____________________.
4. Words such as NOT, AND, and OR which are used for complex conditions are called ______________________________.
5. Most Data Base Management System systems today have a user interface whichwewouldcalla ________________________.
6. In the future, it will be easier to find selected data in a data base through the use of a ____________________.

Activity Sheet Key

C 5.2

Identify Data Base Concepts and Terms Associated with Searching

Select the term that best completes the following statements:

searching
query language
deleting
relational operators
natural language
logical operators
updating

1. Symbols such as >, =, and <, which are used to define search criteria, are called relational operators.

2. Selecting records from a file according to defined criteria is called searching.

3. Usually, a search is performed in order to display or print desired records or to find records for updating or deleting.

4. Words such as NOT, AND, and OR which are used for complex conditions are called logical operators.

5. Most Data Base Management System systems today have a user interface which we would call a query language.

6. In the future, it will be easier to find selected data in a data base through the use of a natural language.

ACTIVITY SHEET

C 5.3

Identify Data Base Search Commands for Your System

The purpose of this activity is to determine whether or not you understand how to identify data base search commands for your system. Use the STUDENT data base file.

1. What procedure is used to search for a particular record on your system?

2. Find and display the record for OWENS JANICE. What is her student number?

3. Identify the procedure for printing individual records on your system.

4. Print the record for student number 87191113. What is the name of the student?

5. List all of the students from DeKalb on the screen. Identify them by name.

6. Identify the procedure for combining search criteria on your system.

7. Display all students from Malta having fees of over $35.00.

Activity Sheet Key

C 5.3

Identify Data Base Search Commands for Your System

1. What procedure is used to search for a particular record on your system?

software specific

2. Find and display the record for OWENS JANICE in the STUDENT file. What is her student number?

86191202

3. Identify the procedure for printing individual records on your system.

software specific

4. Print the record for student number 87191113. What is the name of the student?

Flores Carmen

5. List all of the students from DeKalb on the screen. Identify them by name.

Harder, Jaci Flores, Carmen

Kepka, Margery Valenta, Oscar

6. Identify the procedure for combining search criteria on your system.

software specific

7. Display all students from Malta having fees of over $35.00.

Curry, Wilma Pekar, Margery

Sailes, Michael

AREA: Data Base Management Systems

LEARNER OUTCOME: Use Simple Search or Query Commands to Select Information From a Data Base for Displaying or Printing

LEARNER OUTCOME: C 5

PERFORMANCE/PRODUCT CHECKLIST

STUDENT ______________________________ PERFORMANCE ATTEMPT 1 2 3 4

EVALUATOR ____________________________ DATE ____________________

EVALUATION SITE ____________________

TERMINAL PERFORMANCE OBJECTIVE:

Given a microcomputer system, Data Base Management System package, and documentation, you will identify concepts and terms associated with searching a data base. You will perform search procedures on your system.

DIRECTIONS TO THE STUDENT:

Before attempting this task for mastery, carefully review this checklist. You will be evaluated on the basis of this checklist. When you feel you are ready for evaluation, contact your instructor. You must complete your performance within 1 hour and must score at least 5 out of 5, points, or 100%.

DIRECTIONS TO THE EVALUATOR:

The student will contact you when ready for evaluation. The student must complete the performance within 1 hour and must score 5 out of 5 points, or 100%.

PERFORMANCE/PRODUCT CHECKLIST

C 5

Use Simple Search or Query Commands to Select Information from a Data Base for Displaying or Printing

CRITICAL ITEMS	ITEMS TO BE OBSERVED OR CHECKED	RATING YES/NO
1.	Perform a search of the student data base for a ROBINSON JAN. Display the record on the screen. Print the record.	___ ___
2.	Perform a search for all students from Sycamore. Display the records on the screen. Print the records.	___ ___
3.	Perform a search for all students from DeKalb who are seniors. Display the records on the screen. Print the records.	___ ___
4.	Perform a search for all students who are football players who are not seniors. Display the records on the screen. Print the records.	___ ___
5.	Perform a search for all students who are football or basketball players and who are members of the National Honor Society. Display the records on the screen. Print the records.	___ ___

TOTAL POINTS 5

POINTS NEEDED 5

SCORE ______

PERFORMANCE/PRODUCT CHECKLIST

C 5

Use a Simple Search or Query Commands to Select Information From a Data Base for Displaying or Printing

Load the filename STUDENT. Search for the following information:

1) Search for Robinson, Jan.
   Display and print the record.
2) Search for all students from Sycamore.
   Display and print the record.
3) Search for all students from DeKalb who are seniors.
   Display and print the records.
4) Search for all students who are football players who are not seniors.
   Display and print the records.
5) Search for all students who are football or basketball players and who are members of the National Honor Society.
   Display and print the records.

WRITTEN EXAM

C 5

Use Simple Search or Query Commands to Select Information from a Data Base for Displaying or Printing

The purpose of this exam is to determine whether or not you can use simple search or query commands to select information from a data base for displaying or printing.

Each of the questions or incomplete statements below is followed by several words or phrases. Choose the one that best answers the question or completes the statement correctly. Place the letter associated with that choice (A, B, C or D) in the numbered blank space on your ANSWER SHEET. To master this task, you must answer 6 out of 7, or 86% on a written exam.

WRITTEN EXAM

C 5

Use Simple Search or Query Commands to Select Information from a Data Base for Displaying or Printing

1. The term "searching" refers to

   a. selecting records from a file based on defined criteria
   b. looking through a printed report to find errors
   c. sorting a file by name
   d. updating records

2. Which of the following is an example of a relational operator?

   a. AND
   b. +
   c. TRUE
   d. <

3. Which of the following is an example of a logical operator?

   a. AND
   b. +
   c. =
   d. <

4. The criteria that narrow down the search range define the ____________________ of the search.

   a. location
   b. scope
   c. bounds
   d. area

5. The commands used for searching a data base make up the Data Base Management System's

   a. menu
   b. natural language
   c. query language
   d. relations

6. A logical expression used for searching is evaluated by the system as being

   a. positive or negative
   b. true or false
   c. possible or impossible
   d. totally true or partially true

WRITTEN EXAM C 5 (continued)

7. Which of the following is not a reason for searching a data base?

   a. adding selected records
   b. deleting selected records
   c. updating selected records
   d. displaying selected records

Written Exam Key

C 5

Use Simple Search or Query Commands to Select Information from a Data Base for Displaying or Printing

1. The term "searching" refers to

   a. selecting records from a file based on defined criteria

2. Which of the following is an example of a relational operator?

   d. <

3. Which of the following is an example of a logical operator?

   a. AND

4. The criteria that narrow down the search range define the ____________________ of the search.

   b. scope

5. The commands used for searching a data base make up the Data Base Management System's

   c. query language

6. A logical expression used for searching is evaluated by the system as being

   b. true or false

7. Which of the following is not a reason for searching a data base?

   a. adding selected records

INFORMATION PROCESSING

Area:	Data Base Management Systems
Learner Outcome C 6:	Identify and Complete Procedures for Inserting/Appending, Modifying, and Deleting Records in the Data Base
Purpose:	As a worker in the modern office, you will need to use a data base management system effectively and be familiar with the functions in order to maintain and update the Data Base Management System.
Objective:	Given a microcomputer system, a Data Base Management System package, and documentation, you will identify and complete procedures for inserting, appending, modifying, and deleting records in the data base. To master this task, you must score 5 out of 5 points, or 100% on a performance/product checklist and 6 out of 7 points, or 86% on a written exam.

Estimated Class Time: will vary from class to class

Learner Outcome C 6

Identify and Complete Procedures for Inserting/Appending Modifying and Deleting Records in the Data Base

LEARNING STEPS

READ:	Information Sheet C 6.1, "Inserting/Appending, Modifying, and Deleting Records in the Data Base."
OBSERVE:	Teacher-led demonstration on inserting/appending, modifying, and deleting records in the data base.
READ:	User's manual on how to insert/append, modify, and delete records in your data base. See your instructor.
REVIEW:	Information Sheet C 1.1, "Data Base Management Systems Concepts and Terms."
COMPLETE:	Activity Sheet C 6.2, "File Maintenance and Update."
COMPLETE:	Activity Sheet C 6.3, "Complete Procedures for Inserting/Appending, Modifying, and Deleting Records on the Data Base."
COMPLETE:	Performance/Product Checklist C 6, "Identify and Complete Procedures for Inserting/Appending, Modifying and Deleting Records in the Data Base." See your instructor.
COMPLETE:	Written Exam C 6, "Identify and Complete Procedures for Inserting/Appending, Modifying and Deleting Records in the Data Base." Contact your instructor.

RESOURCES

C 6

Dravillas, Paul, Steven Stilwell, and Brian K. Williams, Power Pack, Times Mirror/Mosby College Publishing, 1986.

Mandell, Steven L., Introduction to Computers Using the Apple II, West Publishing Company (Different versions for IBM PC, and TRS80), 1985.

Parker, Charles S., Understanding Computers and Data Processing: Today and Tomorrow, Holt, Rinehart, Winston, 1984.

Shelly, Gary B., and Thomas J. Cashman, Computer Fundamentals for the Information Age, Anaheim, 1984.

Wolff, Terris B., Microcomputer Applications: Using Small Systems Software, Boyd, Fraser, 1985.

EQUIPMENT/SOFTWARE/MATERIALS NEEDED

DOS (Disk Operating System) manual for your computer

User guide, tutorials, help features, and reference cards for your Data Base Management System software

A microcomputer system

A Data Base Management System software package

A blank diskette or data diskette

INFORMATION SHEET

C 6.1

Inserting/Appending, Modifying, and Deleting Records in the Data Base

The functions explained in this section are all methods of data base management or maintaining accurate and current information in the data base.

1. WHY USE THE INSERT FUNCTION?

   The insert function will allow more data to be added into a specific location easily and quickly.

2. WHY USE THE APPEND FUNCTION?

   The append function is similar to the insert function. An appended record is added to the end of the file.

3. WHY USE THE MODIFY FUNCTION?

   The modify or change function is a fast way to edit or rearrange the contents of a record to better suit your needs. However, you will need to use the search function to locate the specific record to be modified.

4. WHY USE THE DELETE FUNCTION?

   The delete function is used to clean up the data base, update the data base, and keep the data base current and accurate. How deletions are made will depend upon the Data Base Management System used. Deletions can sometimes be conditional.

ACTIVITY SHEET

C 6.2

File Maintenance and Update

The purpose of this activity is to outline the procedures for updating a data base file. Use your software manual as a guide.

Fill in the answers to the following questions.

1. Outline briefly the procedure used to add a record.

2. Outline briefly the procedure used to modify a record.

3. Briefly outline the procedure used to delete a record.

Activity Sheet Key

C 6.2

File Maintenance and Update

These answers will vary depending upon the type of software being used by the student.

ACTIVITY SHEET

C 6.3

Complete Procedures for Inserting/Appending, Modifying, and Deleting Records in the Data Base

Load the data base file called LABELS.

1. Insert or append the following record after Mona Anderson.

    STUDENT NAME: JACK FOSTER
    ADDRESS: 2156 S LAFLIN
    CITY: CHICAGO, IL 60608
    CODE: 10

2. Search and delete the following record.

    STUDENT NAME: DARRYL NASH
    ADDRESS: 334 BOND AVE
    CITY: KINGSTON, IL 60148
    CODE: 14

3. Delete the following record.

    STUDENT NAME: MONROE DIGSBY
    ADDRESS: 712 E 111TH STREET
    CITY: CHICAGO, IL 60637
    CODE: 08

4. Search for Lois Ramirez's record.
    Change the address to 415 E Racine.

AREA: Data Base Management Systems

LEARNER OUTCOME: Identify and Complete Procedures for Inserting/Appending, Modifying, and Deleting Records in the Data Base

LEARNER OUTCOME: C 6

PERFORMANCE/PRODUCT CHECKLIST

STUDENT ______________________________ PERFORMANCE ATTEMPT 1 2 3 4

EVALUATOR ______________________________ DATE ______________________

EVALUATION SITE ____________________

TERMINAL PERFORMANCE OBJECTIVE:

Given a microcomputer system, a Data Base Management System software package, and documentation, you will identify and complete tasks of inserting, appending, modifying, and deleting records in the data base.

DIRECTIONS TO THE STUDENT:

Before attempting this task for mastery, carefully review this checklist. You will be evaluated on the basis of this checklist. When you feel you are ready for evaluation, contact your instructor. You must complete your performance within __35__ minutes and must score at least 5 out of 5, or 100%.

DIRECTIONS TO THE EVALUATOR:

The student will contact you when ready for evaluation. The student must complete the performance within __35__ minutes and must score 5 out of 5 points, or 100%.

PERFORMANCE/PRODUCT CHECKLIST

C 6

Identify and Complete Procedures for Inserting/Appending, Modifying, and Deleting Records in the Data Base

CRITICAL ITEMS	ITEMS TO BE OBSERVED OR CHECKED	RATING YES/NO
1.	Insert/append the record for David Smith in the STUDENT file correctly.	___ ___
2.	Search and delete the record for Emma Williamson from the STUDENT file correctly.	___ ___
3.	Search and modify the record for Tim Vanderwall in the STUDENT file correctly.	___ ___
4.	Append the record for Data Append in the STUDENT file correcty.	___ ___
5.	Search and delete the record for Jaci Harder from the STUDENT file correctly.	___ ___

TOTAL POINTS 5

POINTS NEEDED 5

SCORE ______

PERFORMANCE/PRODUCT CHECKLIST

C 6

Idnetify and Complete Procedures for Inserting/Appending, Modifying, and Deleting Records in the Data Base

Load the filename STUDENT. Insert/append, modify, delete the following information inot the records in this file. When all revisions are complete, print out a hard copy of the report. Refer to the software documentation, locatged in the classroom, and Performance/Product Checklist C 6, "Insert/Append, Modify, and Delete Records in a File."

TEXT:

1. Insert or add the following record after Tim Vanderwall's name in the STUDENT file.

STUDENT#	86191215
NAME	Smith David
ADDRESS	Box 500
CITY	Sycamore
ST	IL
ZIP	60178
GRADE	12
CLUBS	
SPORTS	22
FEES	40.00

2. Search and delete the following record in the STUDENT record.

STUDENT#	87191007
NAME	Williamson Emma
ADDRESS	560 DeKalb Avenue
CITY	Sycamore
ST	IL
ZIP	60178
GRADE	10
CLUBS	55
SPORTS	
FEES	25.50

3. Search for Tim Vanderwall's record in the STUDENT file. Change the address to 202 Connors Court.

PERFORMANCE/PRODUCT CHECKLIST C 6 (continued)

4. Append the following record to the end of the STUDENT file.

STUDENT#	89190916
NAME	Append Data
ADDRESS	1600 Crest Drive
CITY	Malta
ST	IL
ZIP	60150
GRADE	09
CLUBS	76
SPORTS	23
FEES	35.00

5. Delete the following record from the STUDENT file.

STUDENT#	86191206
NAME	Harder Jaci
ADDRESS	412 Holly Drive
CITY	DeKalb
ST	IL
ZIP	60115
GRADE	12
CLUBS	55
SPORTS	
FEES	25.60

WRITTEN EXAM

C 6

Identify and Complete Procedures for Inserting/Appending, Modifying, and Deleting Records in the Data Base

The purpose of this exam is to determine whether or not you can identify and complete procedures for inserting, modifying, and deleting records in the data base.

Each of the questions is True or False. Choose the one that best answers the question. Write True or False on your ANSWER SHEET. To master this task, you must answer 6 out of 7 or 86%.

WRITTEN EXAM

C 6

Identify and Complete Procedures for Inserting/Appending, Modifying, and Deleting Records in the Data Base

T F 1. If a record needs to be added alphabetically, the whole file must be recreated.

T F 2. The data base record cannot be changed once created.

T F 3. Unnecessary records can be deleted.

T F 4. "Inserting" is changing the contents of an existing record in a file or data base.

T F 5. "Modifying" is the process of removing the data from a specific record so that it can no longer be retrieved.

T F 6. "Inserting" is the process of updating a file by keying additional records into the original file.

T F 7. Some systems will restore a deleted record.

Written Exam Key

C 6

Identify and Complete Procedures for Inserting/Appending, Modifying, and Deleting Records in the Data Base

T [✓ F] 1. If a record needs to be added alphabetically, the whole file must be recreated.

T [✓ F] 2. The data base record cannot be changed once created.

[✓ T] F 3. Unnecessary records can be deleted.

T [✓ F] 4. "Inserting" is changing the contents of an existing record in a file or data base.

T [✓ F] 5. "Modifying" is the process of removing the data from a specific record so that it can no longer be retrieved.

[✓ T] F 6. "Inserting" is the process of updating a file by keying additional records into the original file.

[✓ T] F 7. Some systems will restore a deleted record.

INFORMATION PROCESSING

Area: Data Base Management Systems

Learner Outcome C 7: Design and Define a Report Format and Print a Report

Purpose: As a worker in the modern office, you will need to design and define a report and print a hard copy of selected information.

Objective: Given a microcomputer system, Data Base Management System package, and documentation, you will identify and complete procedures for designing a report format and printing a report. To master this task, you must score 19 out of 19 points, or 100% on a performance checklist.

Estimated Class Time: will vary from class to class

Learner Outcome C 7

Design and Define a Report Format and Print a Report

LEARNING STEPS

READ:	Information Sheet C 7.1, "Design and Define a Report Format and Print a Report."
OBSERVE:	Teacher-led demonstration on designing and defining a report format and printing a report.
READ:	User's Manual on the main functions on creating a report format and the printer options.
READ:	Information Sheet C 7.2, "Report Formats and Printer Options."
COMPLETE:	Activity Sheet C 7.3, "Report Format Specifications."
COMPLETE:	Activity Sheet C 7.4, "Printer Options."
COMPLETE:	Activity Sheet C 7.5, "Print a Report."
COMPLETE:	Performance/Product Checklist C 7, "Design and Define a Report Format and Print a Report." Contact your instructor.

RESOURCES

C 7

Dravillas, Paul, Steven Stilwell, and Brian K. Williams, Power Pack, Times Mirror/Mosby College Publishing, 1986.

Mandell, Steven L., Introduction to Computers Using the Apple II, West Publishing Company (Different versions for IBM PC, and TRS80), 1985.

Parker, Charles S., Understanding Computers and Data Processing: Today and Tomorrow, Holt, Rinehart, Winston, 1984.

Shelly, Gary B., and Thomas J. Cashman, Computer Fundamentals for the Information Age, Anaheim, 1984.

Wolff, Terris B., Microcomputer Applications: Using Small Systems Software, Boyd, Fraser, 1985.

EQUIPMENT/SOFTWARE/MATERIALS NEEDED

DOS (Disk Operating System) manual for your computer

User guide, tutorials, help features, and reference cards for your Data Base Management System software

A microcomputer system

A Data Base Management System software package

A blank diskette or data diskette

INFORMATION SHEET

C 7.1

Design and Define a Report Format and Print a Report

1. WHAT IS A REPORT FORMAT?

   A report format is a list of specifications keyed into your system to describe how the report should be put together. It is the outline of what you want the report to look like.

2. WHAT IS A REPORT MENU?

   A report menu is a listing of the choices available to help you determine how the report should be put together.

3. WHAT IS A DEFAULT VALUE?

   A default value is a value that the computer automatically uses if the user does not key in different instructions.

4. WHAT IS A DOCUMENT?

   A document is one or more lines of text (words, letters, numbers, symbols) that is named and stored as a separate copy.

5. WHAT IS A PROCEDURE?

   A procedure is a series of steps followed in a definite order.

INFORMATION SHEET

C 7.2

Report Formats and Printer Options

Data bases can be menu driven or command driven. Refer to Information Sheet C 2.1 for a definition of each type.

As you read through your software manual, determine whether your data base is menu or command driven. If it is menu driven, follow the prompts carefully. Also identify those functions that will help you design a report format. There are common functions in all data bases that must be considered to design a format and to print a report. As you read, ask yourself the following questions:

1. What do you want the printout to look like? Imagine a visual layout of the complete format.
2. Where on the page should the information be printed?
3. Which functions will be used and in which order?
4. How many fields, items, categories, attributes, and/or records will the completed document contain?

Your software package will determine how you will answer those questions. Once the report format specifications are complete, refer to the chapter in your software manual on printer options. You might be able to print the report using the printer default values. Before printing the report, review the format.

ACTIVITY SHEET

C 7.3

Report Format Specifications

The purpose of this activity is to determine whether or not you have understood how to format specifications.

Outline the procedure for each function. If the function does not apply to your system, leave the space blank.

FUNCTION	**PROCEDURE**
1. Cursor movements on the report display	
2. Determine column widths	
3. Determine the number of fields/items/records	
4. Rearrange/organize fields/items/records	
5. Replace deleted fields/items/records	
6. Report names and titles	
7. Check the newly created report format	
8. Maximum characters for report name	

Activity Sheet Key

C 7.3

Report Format Specifications

These answers will vary depending upon the type of software being used by the student.

ACTIVITY SHEET

C 7.4

Printer Options

The purpose of this activity is to determine whether or not you know how to outline the procedure for each function.

Outline the procedure for each function. If the function does not apply to your system, leave the space blank.

FUNCTION	**PROCEDURE**
1. Prepare printer	
2. Set margins left right top bottom	
3. Characters per line per inch	
4. Special printer codes	
5. Linespacing (single, double, triple)	
6. Titles/headings	
7. Page numbers	
8. Select number of copies	
9. Execute print command	
10. Leave printer mode	

Activity Sheet Key

C 7.4

Printer Options

These answers will vary depending upon the type of software being used by the student.

ACTIVITY SHEET

C 7.5

Print a Report

Load the filename called LABELS. Design and produce a report format that resembles the example below.

EMPLOYEE CODES

NAME	CODE
Anderson Mona	02
Chavez Maria	20
Conroy Matthew	15
Green Billie	02
Hunter Joanne	12
Mitchell John	14
Myers Susan	03
Nash Darryl	14
Ramirez Lois	02

AREA: Data Base Management Systems

LEARNER OUTCOME: Design and Define a Report Format and Print a Report

LEARNER OUTCOME: C 7

PERFORMANCE/PRODUCT CHECKLIST

STUDENT ______________________________ PERFORMANCE ATTEMPT 1 2 3 4

EVALUATOR ___________________________ DATE ___________________

EVALUATION SITE ___________________

TERMINAL PERFORMANCE OBJECTIVE:

Given a microcomputer system, a software Data Base Management System package, and documentation, you will design and define a report format and print a report.

DIRECTIONS TO THE STUDENT:

Before attempting this task for mastery, carefully review this checklist. You will be evaluated on the basis of this checklist. When you feel you are ready for evaluation, contact your instructor. You must complete your performance within 45 minutes and must score at least 19 out of 19 points, or 100%.

DIRECTIONS TO THE EVALUATOR:

The student will contact you when ready for evaluation. The student must complete the performance within 45 minutes and must score 19 out of 19 points, or 100%.

PERFORMANCE/PRODUCT CHECKLIST

C 7

Design and Define a Report Format and Print a Report

CRITICAL ITEMS	ITEMS TO BE OBSERVED OR CHECKED	RATING YES/NO
1.	Locate STUDENT file.	___ ___
2.	Cursor movements.	___ ___
3.	Determine column widths.	___ ___
4.	Determine number of fields/items/records.	___ ___
5.	Rearrange/organize fields, items, records.	___ ___
6.	Report name and title.	___ ___
7.	Standard system default values.	___ ___
8.	Check report before printing.	___ ___
9.	Select number of copies.	___ ___
10.	Determine margins.	___ ___
11.	Determine linespacing.	___ ___
12.	Special printer codes.	___ ___
13.	Page numbering.	___ ___
14.	Saving the file. Refer to software manual.	___ ___
15.	Halt or quit printing.	___ ___
16.	Print the report.	___ ___
17.	Submit report.	___ ___
18.	Disks, software manuals, and other supplies returned to the proper place.	___ ___
19.	Clear workstation.	___ ___
	TOTAL POINTS	19
	POINTS NEEDED	19
	SCORE	______

PERFORMANCE/PRODUCT CHECKLIST

C 7

Design and Define a Report Format and Print a Report

Load the filename STUDENT. Design and produce a report format that resembles the example below.

```
                         STUDENT ENROLLMENT

STUDENT #                    NAME                             GRADE

86191205                 Curry Wilma                            12
87191104                 Vanderwall Tim                         11
86191215                 Smith David                            12
86191008                 Marvelinski Captain                    10
86191202                 Owens Janice                           12
87191109                 Robinson Jan                           11
88191110                 Kepka Margery                          11
88191111                 Brownstein Dorothy                     11
88191003                 Sailes Michael                         10
86191201                 Butler Lois                            12
87191112                 Pekar Margery                          11
87191113                 Flores Carmen                          11
86191214                 Valente Oscar                          12
89190916                 Append Data                            09
```

INFORMATION PROCESSING

Area: Data Base Management Systems

Learner Outcome C 8: Define the Report Specifications Involving Arithmetic and Logical Operations, and Print a Report

Purpose: As a worker in the modern office, you will need to use the Data Base Management System options to print selected fields and records, summarize and print selected fields, and obtain and print derived columns.

Objective: Given a microcomputer system, the Data Base Management System software package, and documentation, you will print selected records using logical operators, print a data report using the print options that summarize selected fields, and print reports that contain derived columns. To master this task you must score 6 out of 6 points, or 100% on a Performance/Product Checklist.

Estimated Class Time: 2 hrs.

Learner Outcome C 8

Define the Report Specifications Involving Arithmetic and Logical Operations, and Print a Report

LEARNING STEPS

READ: Information Sheet C 8.1, "Data Base Management Concepts and Terms."

READ: Data Base Software Manual. See your instructor.

COMPLETE: Activity Sheet C 8.2, "Identifying and Printing Selected Records, Totals, and Derived Columns."

COMPLETE: Performance/Product Checklist C 8, "Define the Report Specifications Involving Arithmetic and Logical Operations, and Print a Report." Contact your instructor.

RESOURCES

C 8

Mandell, Steven L., *Introduction to Computers Using the Apple II*. West Publishing Company, 1985 (Different versions for IBM PC and TRS80).

Parker, Charles S., *Understanding Computers and Data Processing: Today and Tomorrow*, Holt, Rinehart, Winston, 1984.

Shelly, Gary B. and Thomas J. Cashman, *Computer Fundamentals for Information Age*, Anaheim, 1984.

Wolff, Terris B., *Microcomputer Applications: Using Small Systems Software*, Boyd, Fraser, 1985.

Data Base User's Manual (See instructor).

EQUIPMENT/SOFTWARE NEEDED

A microcomputer system

A Data Base Management System package

A blank diskette or data diskette

INFORMATION SHEET

C 8.1

Data Base Management Concepts and Terms

Data base management system report options allow the user to print selected fields and records, summarize and print selected fields, and obtain and print derived columns.

Note** Review Information Sheet C 5.1, "Data Base Concepts and Terms Associated with Searching."

1. PRINTING SELECTED RECORDS

Selected records can be printed by using logical operators. Logical operators test a data condition and indicate a response of true or false. The logical operators used in some data base management systems are: .AND., .OR., AND .NOT.. An example of selecting a record by using logical operators is: REPORT FORM GRADE = 11 .OR. GRADE = 12. The printed report would select and print the students who are in grades 10 and 11. An example from the data base file student is:

STUDENT #	NAME	GRADE
87191104	Vanderwall Tim	11
86191008	Marvelinski Captain	10
87191109	Robinson Jan	11
88191110	Kepka Margery	11
88191111	Brownstein Dorothy	10
88191003	Sailes Michael	10
8719112	Pekar Margery	11
8719113	Flores Carmen	11

Other data base management systems select fields by using a special symbol. An example of this type of selection is: Grade: +. See your instructor or Data Base Management System manual for specific instructions on printing selected records.

2. PRINTING TOTAL FIELDS

Selected fields can be summarized and totals printed in the Report Format Options. In some Data Base Management System software packages, the user sometimes answers a menu-driven request for totals and lists the field names to be summarized. Other Data Base Management System software packages request a total command. See your instructor or Data Base Management System manual for specific instructions on summarizing and printing total fields.

3. DERIVED COLUMNS

Arithmetic operators can be used to obtain derived columns. A derived column is one that is created as a result of computations. Most data base software packages allow up to 3 derived columns. The arithmetic operators used in performing calculations are

+ addition
- subtraction
* multiplication
/ division

All operations are performed from left to right. In addition, arithmetic operations are performed within parentheses first. An example of using an arithmetic operator to create a derived field is:

INVENTORY

	COST	ON-HAND
BEFORE CALCULATION	$8.53	87
	6.20	15
	4.23	20

COMMAND: TOTAL = COST * ON-HAND

INVENTORY

	COST	ON-HAND	TOTAL
AFTER CALCULATION	$8.53	87	$742.11
	6.20	15	93.00
	4.23	20	84.60

ACTIVITY SHEET

C 8.2

Identifying and Printing Selected Records, Totals, and Derived Columns

Using the microcomputer system, Data Base Management System manual, and your data base file STUDENT, complete the following exercises:

1. PRINT the record(s) of all students who live in Chicago and Sycamore.

2. PRINT the record(s) of all students whose club code is 01 or 76.

3. PRITN the record(s) of all students whose fee > 25.00 and Grade = 10.

4. PRINT report which summarizes and displays a total of the fees column.

5. PRINT a derived column report which will show the amount of a 5% increase in fees.

   Increase = Fees * .05
   (Derived Field)

   Display the following fields in your report:

   Student # Name Fees Increase

6. PRINT a report which will create a second derived field called "NEW FEES" by adding fees and increase.

   (Derived Field)

   NOTE: New Fee = Fee + Increase

   Display the following fields in your report:

   Student # Name Fees Increase New Fee

AREA: Data Base Management Systems

LEARNER OUTCOME: Define the Report Specifications Involving Arithmetic and Logical Operations, and Print a Report

LEARNER OUTCOME: C 8

PERFORMANCE/PRODUCT CHECKLIST

STUDENT ______________________________ PERFORMANCE ATTEMPT 1 2 3 4

EVALUATOR ______________________________ DATE ____________________

EVALUATION SITE ____________________

TERMINAL PERFORMANCE OBJECTIVE:

Given appropriate software, software manual and workstation, create a data base and define and enter the data base structure.

DIRECTIONS TO THE STUDENT:

Before attempting this task for mastery, carefully review this checklist. You will be evaluated on the basis of this checklist. When you feel you are ready for evaluation, contact your instructor. You must complete your performance within 45 minutes and must score at least 6 out of 6 points, or 100%. Critical items are marked with an asterisk (*). These items must be completed satisfactorily.

DIRECTIONS TO THE EVALUATOR:

The student will contact you when ready for evaluation. The student must complete the performance within 45 minutes and must score 6 out of 6 points, or 100%. All items marked with an asterisk (*) must be completed satisfactorily.

PERFORMANCE/PRODUCT CHECKLIST

C 8

Define the Report Specifications Involving Arithmetic and Logical Operations, and Print a Report

CRITICAL ITEMS	ITEMS TO BE OBSERVED OR CHECKED	RATING YES/NO
*1.	Print the record(s) of all students whose Zip Code is 60115 OR 60150.	
*2.	Print the record(s) of students whose Sports Code = 23 AND Grade = 11.	
*3.	Print the record(s) of students whose Fee = 30.70 AND Grade = 10.	
*4.	Print a report that summarizes and displays a total of the fees column. Display the following fields: I.D.# Name Fee	
*5.	Print a derived column report that will show the amount of a 10% increase in fees. NOTE: Increase = Fees * .05 (Derived Field) Print the following fields in your report: Student # Name Fees Increase	
*6.	Print a report that will create a second derived field, "New Fee," by adding Fees and Increase. NOTE: New Fees = Fee + Increase (Derived Field) Print the following fields in your report: Student # Name Fees Increase New Fee	

TOTAL POINTS 6

POINTS NEEDED 6

SCORE ______

PERFORMANCE/PRODUCT CHECKLIST

C 8

Define the Report Specifications Involving Arithmetic and Logical Operations, and Print a Report

Using the microcomputer system, Data Base Management System manual, and your data base file STUDENT, complete the following exercises:

1. PRINT the record(s) of all students who live in Cortland and DeKalb.

2. PRINT the record(s) of all students whose club code is 55 or 76.

3. PRINT the record(s) of all students whose fee > 30.00 and Grade = 10.

4. PRINT a report that summarizes and displays a total of the fees column.

5. PRINT a derived column report that will show the amount of a 5% increase in fees.

   Increase = Fees * .05
   (Derived Field)

   Display the following fields in your report:

   Student # Name Fees Increase

6. PRINT a report that will create a second derived field called "NEW FEES" by adding fees and increase.

   (Derived Field)

   NOTE: New Fee = Fee + Increase

   Display the following fields in your report:

   Student # Name Fees Increase New Fee

Performance/Product Checklist Key

C 8

Define the Report Specifications Involving Arithmetic and Logical Operations, and Print a Report

1. The printout should display 6 students from Cortland and DeKalb.
2. The printout should display 5 students with Club Code 55 or 76.
3. The printout should display 2 students with fees greater than 30 and grade 10.
4. The printout should display total fees equal 497.55.
5. The printout should display a derived column with an increase of 5% for each student's fees.

   Example:

Name	Fees	Increase
Torres, Edna	32.50	1.62

6. The printout should show a second derived column called NEW FEES which is established by adding the number in the FEES to the amount in the Increase Column.

   Example:

Name	Fee	Increase	New Fee
Torres, Edna	32.50	1.63	34.13

INFORMATION PROCESSING

Area: Data Base Management Systems

Learner Outcome C 9: Define and Complete the Procedures for Sorting And/Or Indexing the Data Base, and Print a Report

Purpose: As a worker in the modern office, you will need to use the Data Base Management System options to reorganize the data base.

Objective: Given a microcomputer system, and the Data Base Management System package and documentation, you will identify and complete procedures for sorting/rearranging, and indexing/searching records in a data base. To master this task, you must score 5 out of 5 points, or 100% on a Performance/Product Checklist.

Estimated Class Time: 2 hrs.

Learner Outcome C 9

Define and Complete the Procedures for Sorting And/Or Indexing the Data Base, and Print a Report

LEARNING STEPS

READ:	Information Sheet C 9.1, "Sort/Rearrange and Index/Search a Data Base."
OBSERVE:	Teacher-led demonstration on sort/rearrange and index/search the data base.
READ:	User's manual on how to sort/rearrange and index/search for information in the data base. See your instructor.
READ:	Information on sort/rearrange and index/search in one or more of the resources listed on next page. See your instructor.
COMPLETE:	Activity Sheet C 9.2 "Sort/Rearrange and Index/Search a Data Base."
COMPLETE:	Activity Sheet C 9.3, "Define and Complete the Procedures for Sorting and/or Indexing the Data Base and for Printing a Report."
COMPLETE:	Performance/Product Checklist C 9, "Define and Complete the Procedures for Sorting and/or Indexing the Data Base and Print a Report." Contact your instructor.

RESOURCES

C 9

Dravillas, Paul, Steven Stilwell, and Brian K. Williams, Power Pack, Times Mirror/Mosby College Publishing, 1986.

Mandell, Steven L., Introduction to Computers Using the Apple II, West Publishing Company (Different versions for IBM PC, and TRS80), 1985.

Parker, Charles S., Understanding Computers and Data Processing: Today and Tomorrow, Holt, Rinehart, Winston, 1984.

Shelly, Gary B., and Thomas J. Cashman, Computer Fundamentals for the Information Age, Anaheim, 1984.

Wolff, Terris B., Microcomputer Applications: Using Small Systems Software, Boyd, Fraser, 1985.

Data Base User's Manual (see instructor).

EQUIPMENT/SOFTWARE/MATERIALS NEEDED

DOS (Disk Operating System) manual for your computer

User guide, tutorials, help features, and reference cards for your Data Base Management System or file management software

A microcomputer system

A Data Base Management System software package

A blank diskette or data diskette

INFORMATION SHEET

C 9.1

Sort/Rearrange and Index/Search a Data Base

The functions explained in this section represent two ways to organize the randomly entered data.

Some Data Base Management System software packages are very powerful and have true sort/rearrange and index/search capabilities. Other packages have sort/index functions that strongly resemble a "search/find" function or an "item select" function using symbols for print specifications or using the menu index.

Sorting and indexing are similar in concept but different in application.

1. WHY USE THE SORT FUNCTION?

   The sort function is the physical process of reorganizing the data base records. You may sort in ascending (smallest to largest) or descending (largest to smallest) order. Data can be sorted alphabetically or numerically.

2. WHY USE THE INDEX FUNCTION?

   The index function allows direct access to a particular record(s). Data stored in the STUDENT file can be accessed by student #, name, or grade. Another example would be a library index file. You can locate a book by author, title, or subject. The particular Data Base Management System may not have an index function. Instead, you might have a record selection function or a search function. In this case you specify according to your software manual the necessary information within the entry on which the microcomputer will search.

3. WHAT IS A SORT KEY?

   A sort key is a field or combination of fields in a data base.

ACTIVITY SHEET

C 9.2

Sort/Rearrange and Index/Search a Data Base

The purpose of this activity is to determine whether or not you understand how to sort/rearrange and index/search a data base.

Using your software manual and/or program menu, fill in the answers to the following questions:

1. **List the functions necessary to sort/arrange a field using your Data Base Management System.**

2. Briefly outline the procedures used to sort/arrange the data base information.

3. List the functions necessary to index/search the data base using your Data Base Management System.

4. Briefly outline the procedures used to index/search the data base information.

Activity Sheet Key

C 9.2

Sort/Rearrange and Index/Search a Data Base

These answers will vary depending upon the type of software being used by the student.

ACTIVITY SHEET

C 9.3

Define and Complete the Procedures for Sorting and/or Indexing the Data Base and for Printing a Report

Using the sample data base called LABELS, sort/rearrange and print a hard copy for the following fields:

1) Name
2) Code

Using the same file, index/search and print hard copies of

3) Code 02
4) Anyone in Chicago, IL

Submit your hard copies of each activity for evaluation.

AREA: Data Base Management Systems

LEARNER OUTCOME: Define and Complete the Procedures for Sorting and/or Indexing the Data Base, and Print a Report

LEARNER OUTCOME: C 9

PERFORMANCE/PRODUCT CHECKLIST

STUDENT ________________________________ PERFORMANCE ATTEMPT 1 2 3 4

EVALUATOR ______________________________ DATE ________________________

EVALUATION SITE ____________________

TERMINAL PERFORMANCE OBJECTIVE:

Given a microcomputer system, a Data Base Management System software package and documentation, you will identify and complete procedures for sorting/rearranging and indexing/searching records in a data base.

DIRECTIONS TO THE STUDENT:

Before attempting this task for mastery, carefully review this checklist. You will be evaluated on the basis of this checklist. When you feel you are ready for evaluation, contact your instructor. You must complete your performance within 1 hour and must score at least 5 out of 5 points, or 100%.

DIRECTIONS TO THE EVALUATOR:

The student will contact you when ready for evaluation. The student must complete the performance within 1 hour and score 5 out of 5 points, or 100%.

PERFORMANCE/PRODUCT CHECKLIST

C 9

Define and Complete the Procedures for Sorting and/or Indexing the Data Base and Print a Report

Using the sample data base called STUDENT, sort/rearrange and print a hard copy for the following fields:

1) Student #
2) Student name
3) City.

Using the same file, index/search and print hard copies of

4) Zip Code 60112 and
5) Anyone involved in Sports 22.

Submit your hard copies of each activity for evaluation.

CRITICAL ITEMS	ITEMS TO BE OBSERVED	RATING YES/NO
1.	Sort/rearrange the STUDENT# field or category?	
2.	Sort/rearrange the NAME field or category?	
3.	Sort/rearrange the CITY field or category?	
4.	Index/search by ZIP CODE field or category?	
5.	Index/search by NAME field or category?	

TOTAL POINTS 5

POINTS NEEDED 5

SCORE

INFORMATION PROCESSING

Area: Data Base Management Systems

Learner Outcome C 10: Identify and Complete Disk Management Procedures Such As Copying, Renaming, and Passwords Protecting a Data File

Purpose: As a worker in the modern office, you will need to understand and use fundamental disk management procedures.

Objective: Given a microcomputer system, a Data Base Management System software package, and documentation, you will identify general disk file management procedures. You will perform disk management procedures on your system using your Data Base Management System package and/or DOS program. To master this task, you must score 10 out of 10 points, or 100% on a performance checklist, and 6 out of 7, or 85% on a written exam.

Estimated Class Time: 2 hrs.

Learner Outcome C 10

Identify and Complete Disk Management Procedures Such as Copying, Renaming, and Passwords Protecting a Data File

LEARNING STEPS

READ:	Information Sheet C 10.1, "General Disk Management Concepts and Terms."
COMPLETE:	Activity Sheet C 10.2, "Identify Concepts and Terms Associated with General Disk Management."
READ:	Information about disk management procedures in your Data Base Management System documentation and/or DOS manual.
COMPLETE:	Activity Sheet C 10.3, "Identify Disk Management Procedures for Your System."
COMPLETE:	Activity Sheet C 10.4, "Identifying and Completing Disk Management Procedures."
COMPLETE:	Performance/Product Checklist C 10, "Identify and Complete Disk Management Procedures Such as Copying, Renaming and Passwords Protecting a Data File." Contact your instructor.
COMPLETE:	Written Exam C 10, "Identify and Complete Disk Management Procedures Such as Copying, Renaming, and Passwords Protecting a Data File."

RESOURCES

C 10

Mandell, Steven L., Introduction to Computers Using the Apple II, West Publishing Company (Different versions for IBM PC, and TRS80), 1985.

Parker, Charles S., Understanding Computers and Data Processing: Today and Tomorrow, Holt, Rinehart, Winston, 1984.

Shelly, Gary B., and Thomas J. Cashman, Computer Fundamentals for the Information Age, Anaheim, 1984.

Wolff, Terris B., Microcomputer Applications: Using Small Systems Software, Boyd, Fraser, 1985.

Data Base User's Manual (See instructor).

EQUIPMENT/SOFTWARE/MATERIALS NEEDED

DOS (Disk Operating System) manual for your computer

User guide, tutorials, help features, and reference cards for your Data Base Management System software

A microcomputer system

A Data Base Management System package

A blank diskette or data diskette

INFORMATION SHEET

C 10.1

General Disk Management Concepts and Terms

Fundamental disk management knowledge is essential to the efficient use of a computer system and software package.

1. WHAT IS THE CONCEPT OF DISK MANAGEMENT?

   Generalized procedures that operate on whole disks or individual files are called disk management or housekeeping functions. Since these are general functions, the programs to perform them are usually included as part of a software package or as a function of DOS. These programs are called utility programs or file utilities. They may be involved by issuing an individual command for each function or by executing a file utility program that is menu driven.

2. WHAT PROCEDURES ARE INCLUDED IN DISK MANAGEMENT?

   Some of the common functions which are handled by disk management utilities are:

   a. formatting disks (initializing)
   b. copying disks (backup)
   c. copying files
   d. renaming files
   e. erasing files (deleting, purging, removing)
   f. protecting files (passwording)
   g. displaying a directory of files (catalog)
   h. determining available space (free space)

3. HOW DO DISK MANAGEMENT FUNCTIONS RELATE TO A Data Base Management System?

   In addition to the above, some other functions might be required under a Data Base Management System such as, copying the structure of a data base and renaming fields. These concepts will be covered in the next learning guide. It should be mentioned at this time, however, that it may be necessary to copy a data file before modifying the structure, so the data within the file is not lost. Therefore, the copy function is one of the most important to be able to use. Also, copying files and/or disks is essential in maintaining backup copies of data in case the original file is destroyed. Another way to protect data from accidental (or intentional) destruction is to use passwording and protection features. You will have to check your systems to see if such features are available.

As previously noted, data disks need to be formatted before they can be used. Normally, there is a utility program to do this. Also, when using data disks, it is helpful to know how mush free space remains on the disk.

Sometimes it is desirable to rename an existing file without having to copy it. This is possible with a single command or menu selection.

When working with data files, ultimately some of them must be removed from a disk. You may want to delete temporary work files, actual data files that are no longer needed, or garbage files created by mistake. Check your manual to see which command applies.

Finally, as you are using all of these functions, you will find it necessary to keep track of the names of all of your files on a disk. A listing of file names on a disk is called a directory or catalog. Usually a single command such as, DIR or CATALOG will show you this listing.

ACTIVITY SHEET

C 10.2

Identify Concepts and Terms Associated with General Disk Management

The purpose of this activity is to determine whether or not you have understood how to identify concepts and terms associated with disk management.

Matching:

___1.	formatting	A.	a list of the files on a disk--also called a catalog
___2.	copying	B.	the amount of available space left on a disk
___3.	utility programs	C.	generalized procedures that operate on whole disks or individual files
___4.	renaming	D.	duplicating a file or disk
___5.	erasing	E.	programs to perform general housekeeping functions
___6.	protecting	F.	changing the name of a file
___7.	directory	G.	preparing a data disk for use on a particular system
___8.	free space	H.	deleting, purging, or removing files
___9.	disk management procedures	I.	passwording is one way to do this

Activity Sheet Key

C 10.2

Identify Concepts and Terms Associated with General Disk Management

_G_ 1. formatting

_D_ 2. copying

_E_ 3. utility programs

_F_ 4. renaming

_H_ 5. erasing

_I_ 6. protecting

_A_ 7. directory

_B_ 8. free space

_C_ 9. disk management procedures

A. a list of the files on a disk--also called a catalog

B. the amount of available space left on a disk

C. generalized procedures that operate on whole disks or individual files

D. duplicating a file or disk

E. programs to perform general housekeeping functions

F. changing the name of a file

G. preparing a data disk for use on a particular system

H. deleting, purging, or removing files

I. passwording is one way to do this

ACTIVITY SHEET

C 10.3

Identify Disk Management Procedures for Your System

The purpose of this activity is to determine whether or not you have understood the disk management procedures for your system:

Short Answer:

1. On your system, are disk management utilities invoked by individual commands or from a menu?

   ____

2. Does your Data Base Management System package perform any disk management functions?

   ____

3. If the answer to #2 was yes, which functions can be performed from your data base system?

   ____

   ____

   ____

4. Describe briefly the procedure for doing each of the following on your computer:

   A) formatting a data disk ______________________________

   B) copying an entire disk ______________________________

   C) copying a file ______________________________

   D) renaming a file ______________________________

   E) erasing a file ______________________________

   F) passwording a file ______________________________

   G) displaying a directory ______________________________

   H) determining available disk space ______________________

Activity Sheet Key

C 10.3

Identify Disk Management Procedures for Your System

These answers will vary depending upon the type of software being used by the student.

ACTIVITY SHEET

C 10.4

Identifying and Completing Disk Management Procedures

Using a blank diskette, complete the following disk management procedures.

1. Make a back up copy of the data disk which contains the LABELS file.
2. Find out how much space is left on the data disk.
3. Make a copy of the file LABELS. Call the copy LABEL2.
4. Display the directory of your data disk. Check to see if LABEL2 is there.
5. Rename LABEL2. Call it LABEL3.
6. Display the directory again. Check to see if LABEL3 is there.
7. Protect the file so that it cannot be accidentally erased (skip this step if your sytem does not allow this feature).
8. Erase the file (you may have to use a password or unprotect the file).
9. Display the directory to see if LABEL3 has been deleted.
10. Retain your backup disk in a safe place.

AREA: Data Base Management Systems

LEARNER OUTCOME: Identify and Complete Disk Management Procedures Such as Copying, Renaming, and Passwords Protecting a Data File

LEARNER OUTCOME: C 10

PERFORMANCE/PRODUCT CHECKLIST

STUDENT ______________________________ PERFORMANCE ATTEMPT 1 2 3 4

EVALUATOR ______________________________ DATE ______________________

EVALUATION SITE ____________________

TERMINAL PERFORMANCE OBJECTIVE:

Given a microcomputer system, a Data Base Management System software package and documentation, you will identify general disk file management procedures. You will perform disk management procedures on your system using your Data Base Management System package and/or DOS program.

DIRECTIONS TO THE STUDENT:

Before attempting this task for mastery, carefully review this checklist. You will be evaluated on the basis of this checklist. When you feel you are ready for evaluation, contact your instructor. You must complete your performance within one hour and must score at least 10 out of 10 points, or 100%.

DIRECTIONS TO THE EVALUATOR:

The student will contact you when ready for evaluation. The student must complete the performance within one hour and must score 10 out of 10 points, or 100%.

PERFORMANCE/PRODUCT CHECKLIST

C 10

Identify and Complete Disk Management Procedures Such as Copying, Renaming and Passwords Protecting a Data File

Using a blank diskette, complete the following as your instructor observes.

CRITICAL ITEMS	ITEMS TO BE OBSERVED OR CHECKED	RATING YES/NO
1.	Make a back up copy of the data disk which contains the STUDENT file.	___ ___
2.	Find out how much space is left on the data disk.	___ ___
3.	Make a copy of the file STUDENT. Call the copy STUOLD.	___ ___
4.	Display the directory of your data disk. Check to see if STUOLD is there.	___ ___
5.	Rename STUOLD. Call it STUNEW.	___ ___
6.	Display the directory again. Check to see if STUNEW is there.	___ ___
7.	Protect the file so that it cannot be accidentally erased (skip this step if your system does not allow this feature).	___ ___
8.	Erase the file (you may have to use a password or unprotect the file).	___ ___
9.	Display the directory to see if STUNEW has been deleted.	___ ___
10.	Retain your back up disk in a safe place.	___ ___

TOTAL POINTS	10
POINTS NEEDED	10
SCORE	______

WRITTEN EXAM

C 10

Identify and Complete Disk Management Procedures Such as Copying, Renaming, and Passwords Protecting a Data File

The purpose of this exam is to determine whether or not you have understood the information on disk management procedures such as copying, renaming, and passwords protecting a data file.

Choose the term which best defines the statement. Place the letter associated with that term in the numbered blank on your answer sheet. To master this task, you must answer at least 6 out of 7 statements correctly, or 86%.

WRITTEN EXAM

C 10

Identify and Complete Disk Management Procedures Such as Copying, Renaming, and Passwords Protecting a Data File

1. General disk management programs are commonly referred to as

   a. applications programs
   b. utility programs
   c. housecleaning programs
   d. productivity programs

2. Which of the following is not considered a disk management procedure?

   a. renaming a file
   b. copying a file
   c. erasing a file
   d. generating a report

3. A duplicate copy of a disk is often called a

   a. back-up
   b. renamed disk
   c. utility copy
   d. protected disk

4. A list of files that are contained on a disk is called a

   a. directory
   b. catalog
   c. both a and b
   d. none of the above

5. Utility programs may be invoked by typing in a command or by

   a. writing a program
   b. copying a disk
   c. performing a search
   d. choosing from a menu

6. Which of the following terms does not mean the same as ERASE?

   a. DELETE
   b. UNPROTECT
   c. REMOVE
   d. PURGE

7. In order to modify the structure of a data base, a user often must first do what?

   a. protect the data base
   b. erase the file
   c. copy the data to a new file
   d. determine available space on the disk

Written Exam Key

C 10

Identify and Complete Disk Management Procedures Such as Copying, Renaming, and Passwords Protecting a Data File

1. General disk management programs are commonly referred to as

   b. utility programs

2. Which of the following is not considered a disk management procedure?

   d. generating a report

3. A duplicate copy of a disk is often called a

   a. back-up

4. A list of files that are contained on a disk is called a

   c. both a and b

5. Utility programs may be invoked by typing in a command or by

   d. choosing from a menu

6. Which of the following terms does not mean the same as ERASE?

   b. UNPROTECT

7. In order to modify the structure of a data base, a user often must first do what?

   c. copy the data to a new file

INFORMATION PROCESSING

Area: Data Base Management Systems

Learner Outcome C 11: Identify and Complete the Procedures for Renaming Fields and for Modifying the Structure of a Data Base

Purpose: As a worker in the modern office, you will need to modify the structure of a data base due to changes in the business environment.

Objective: Given a microcomputer system, a data base management system package and documentation, you will identify and complete procedures for modifying the structure of a data base. To master this task, you must score 7 out of 7, or 100% on a performance/product checklist.

Estimated Class Time: 1 1/2 hrs.

Learner Outcome C 11

Identify and Complete the Procedures for Renaming Fields and for Modifying the Structure of a Data Base

LEARNING STEPS

READ: Information Sheet C 11.1, "Modifying the Structure of a Data Base."

READ: Data Base software manual. See your instructor.

COMPLETE: Activity Sheet C 11.2, "Identification and Modification of a Data Base Structure."

COMPLETE: Activity Sheet C 11.3, "Complete the Procedures for Renaming Fields and for Modifying the Structure of a Data Base."

COMPLETE: Performance/Product Checklist C 11, "Identify and Complete the Procedures for Renaming Fields and for Modifying the Structure of a Data Base" Contact your instructor.

RESOURCES

C 11

Dravillas, Paul, Steven Stilwell, and Brian K. Williams, *Power Pack*, Times Mirror/Mosby College Publishing, 1986.

Mandell, Steven L., *Introduction to Computers Using the Apple II*, West Publishing Company (Different versions for IBM PC, and TRS80), 1985.

Parker, Charles S., *Understanding Computers and Data Processing: Today and Tomorrow*, Holt, Rinehart, Winston, 1984.

Shelly, Gary B., and Thomas J. Cashman, *Computer Fundamentals for the Information Age*, Anaheim, 1984.

Wolff, Terris B., *Microcomputer Applications: Using Small Systems Software*, Boyd, Fraser, 1985.

Data Base User's Manual (see instructor).

EQUIPMENT/SOFTWARE/MATERIALS NEEDED

User guide, tutorials, help features, and reference cards for your Data Base Management System software

A microcomputer system

A Data Base Management System package

A blank diskette or data diskette

INFORMATION SHEET

C 11.1

Modifying the Structure of a Data Base

Careful planning of the data base structure when the data base management system is created should eliminate the need for frequent modification of the structure. Due to changes in the business environment, it sometimes becomes necessary to modify the structure of the data base. Because of possible loss of data records, extreme caution should be used when following this procedure. Changes that may be made to the data base structure include adding field names, deleting field names, changing the size of a field name, and changing the field type. Changing a fieldname (i.e., NAME to NAMES) requires a special operation. Check with your instructor or data base manual for "Changing Fieldname" capabilities.

The following steps are generally used in modifying the structure of a data base management system. However, check with your instructor or data base manual for specific modificaton instructions or limitations.

1. COPY the data base structure to a temporary file.
2. CHANGE the data base structure in the temporary file.
3. MOVE the data from the original file to the temporary file.
4. DISPLAY the temporary file. Check for accuracy of new structure and data contents.
5. COPY the temporary file back to the original file.
6. DISPLAY original file for accuracy of new data base structure and data contents.
7. ERASE the temporary file.

ACTIVITY SHEET

C 11.2

Identification and Modification of a Data Base Structure

Complete a written response for each of the following statements or questions:

1. Modifying the structure of a data base management system can cause _______________ (eraser/insertion) of all data if specific procedures are not followed.

2. How is the actual data protected during modification of the data base structure?

____

List four types of changes that can generally be made to the data base structure.

3. ____
4. ____
5. ____
6. ____

List the 7 steps to be followed in modifying a data base structure.

7. ____
8. ____
9. ____
10. ____
11. ____
12. ____
13. ____

Activity Sheet Key

C 11.2

Identification and Modification of a Data Base Structure

Complete a written response for each of the following statements or questions.

1. Modifying the structure of a data base management system can cause erasure (erasure/insertion) of all data if specific procedures are not followed.

2. How is the actual data protected during modification of the data base structure?

   creating and working with a temporary file

   List four types of changes that can generally be made to the data base structure.

3. adding field names
4. deleting field names
5. changing the size of a field name
6. changing the field type

   List the 7 steps to be followed in modifying a data base structure.

7. copy data base structure to a temporary file
8. change data base structure in temporary file
9. move data to temporary file
10. display temporary file for accuracy of new structure and data contents
11. copy temporary file back to original file
12. display original file for accuracy
13. erase the temporary file

ACTIVITY SHEET

C 11.3

Complete the Procedures for Renaming Fields and for Modifying the Structure of a Data Base

Note** Check with your instructor or data base manual before attempting this activity sheet. Specific procedures must be followed to avoid destroying all data.

Enter a data base called METERS, which contains the following information:

SERIAL	NAME	ZONE
11125	Jackson Mary	36
45219	McCarthy John	19
37624	Jones Johnny	12
90114	Adamly Kim	52
22314	Waver Dennis	09
77036	Banker Betty	17
31509	Flores Jose	36
24731	Odowski Joseph	79
10065	Brownlee Amanda	42
52384	Thompson Lee	36

Using the seven guidelines listed below and your data base manual, modify the data base structure of the file called METERS.

1. Original field names are: SERIAL NAME ZONE

2. After modifying the data base structure, field names should be:

   READING NAME ZONE

MODIFYING A DATA BASE STRUCTURE

a. COPY the data structure to a temporary file.
b. CHANGE the data structure in the temporary file.
c. MOVE the data from the original file to the temporary file.
d. DISPLAY the temporary file--check for new structure and original data.
e. COPY temporary file back to original file.
f. CHECK original file for accuracy.
g. ERASE temporary file.

Activity Sheet Key

C 11.3

Complete the Procedures for Renaming Fields and for Modifying the Structure of a Data Base

The answers will vary depending upon the type of software the student is using.

AREA: Data Base Management System

LEARNER OUTCOME: Identify and Complete the Procedures for Renaming Fields and for Modifying the Structure of a Data Base

LEARNER OUTCOME: C 11

PERFORMANCE/PRODUCT CHECKLIST

STUDENT ________________________________ PERFORMANCE ATTEMPT 1 2 3 4

EVALUATOR ______________________________ DATE ________________________

EVALUATION SITE ____________________

TERMINAL PERFORMANCE OBJECTIVE:

Given appropriate software, software manual, and workstation, complete procedures for modifying a data base structure.

DIRECTIONS TO THE STUDENT:

Before attempting this task for mastery, carefully review this checklist. You will be evaluated on the basis of this checklist. When you feel you are ready for evaluation, contact your instructor. You must complete your performance within 30 minutes and must score at least 7 out of 7 points, or 100%.

DIRECTIONS TO THE EVALUATOR:

The student will contact you when ready for evaluation. The student must complete the performance within 30 minutes and must score 7 out of 7 points, or 100%.

PERFORMANCE/PRODUCT CHECKLIST

C 11

Identify and Complete the Procedures for Renaming Fields and for Modifying the Structure of a Data Base

Check with your instructor or data base manual before attempting this checklist. Using the sample data base called STUDENT and your data diskette, modify the data structure as follows:

ORIGINAL FIELD	MODIFIED FIELD
Student #	ID
Grade	Year

CRITICAL ITEMS	ITEMS TO BE OBSERVED OR CHECKED	RATING YES/NO
1.	COPY the data structure to a temporary file.	___ ___
2.	CHANGE the data structure in the temporary file.	___ ___
3.	MOVE the data from the original file to the temporary file.	___ ___
4.	DISPLAY the temporary file. Check for accuracy of new structure and data contents.	___ ___
5.	COPY the temporary file back to the original file.	___ ___
6.	DISPLAY the original file. Check for accuracy of new structure and data contents.	___ ___
7.	ERASE the temporary file.	___ ___

TOTAL POINTS ___7___

POINTS NECESSARY ___7___

SCORE ______

PERFORMANCE/PRODUCT CHECKLIST

C 11

Instructions

Using the data base called METERS.

1. The original field names are:

   READING NAME ZONE

2. After modifying the data base structure, field names should be:

   CODE NAME ZONE

INFORMATION PROCESSING

Area: Data Base Management Systems

Learner Outcome C 12: Identify and Complete the Procedures for Setting Up Command Files

Purpose: As a worker in the modern office, you will need to set up command files that allow multiple functions to be executed by a single command.

Objective: Given a microcomputer system, a data base management system package and documentation, you will identify concepts and terms associated with setting up command files. You will set up command files on your system. To master this task, you must score 4 out of 4 points, or 100% on a performance checklist and 6 out of 7, or 86% on a written exam.

Estimated Class Time: 4 hrs.

Learner Outcome C 12

Identify and Complete the Procedures for Setting Up Command Files

LEARNING STEPS

READ: Information Sheet C 12.1, "Data Base Management System Concepts and Terms Associated with Command Files."

COMPLETE: Activity Sheet C 12.2, "Identify Data Base Management System Concepts and Terms Associated with Command Files."

READ: Data Base Management System manual material related to setting up and executing command files.

COMPLETE: Activity Sheet C 12.3, "Identify Command File Techniques for Your System."

COMPLETE: Activity Sheet C 12.4, "Set Up a Command File."

COMPLETE: Performance/Product Checklist C 12, "Identify and Complete the Procedures for Setting Up Command Files."

COMPLETE: Written Exam C 12, "Identify and Complete the Procedures for Setting Up Command Files."

RESOURCES

C 12

Dravillas, Paul, Steven Stilwell, and Brian K. Williams, Power Pack, Times Mirror/Mosby College Publishing, 1986.

Mandell, Steven L., Introduction to Computers Using the Apple II, West Publishing Company (Different versions for IBM PC, and TRS80), 1985.

Parker, Charles S., Understanding Computers and Data Processing: Today and Tomorrow, Holt, Rinehart, Winston, 1984.

Shelly, Gary B., and Thomas J. Cashman, Computer Fundamentals for the Information Age, Anaheim, 1984.

Wolff, Terris B., Microcomputer Applications: Using Small Systems Software, Boyd, Fraser, 1985.

Data Base User's Manual (See instructor).

EQUIPMENT/SOFTWARE/MATERIALS NEEDED

User guide, tutorials, help features, and reference cards for your Data Base Management System software

A microcomputer system

A Data Base Management System package

A blank diskette or data diskette

INFORMATION SHEET

C 12.1

Data Base Management System Concepts and Terms Associated with Command Files

1. WHAT ARE COMMAND FILES?

Command files are groups of data base management system commands that can be saved under a file name and then executed by typing a single command. Sometimes command files are called procedures, macros, or data base programs. The concept of the command files is similar to the idea of defining report specifications and saving them as a file. You have seen this concept in guides C 7 and C 8. Unlike report specifications, however, which reflect only one data base management system function, command files allow the user to write programs to perform any or all of the commands available in the Data Base Management System command language.

2. ARE COMMAND FILES USED IN ALL Data Base Management System PACKAGES?

Generally speaking, if a Data Base Management System is command driven, it will have the capability of saving a group of commands as a procedure. Many menu driven systems do not support the idea of command files. Check your particular system documentation for references to command files, procedures, or programming.

3. WHAT ARE THE ADVANTAGES OF USING COMMAND FILES?

Command files allow the user to define a procedure once, and then to do the procedure simply by referring to its name. Thus, it allows for a simple method of executing a batch of operations. By using command files, groups of data base functions can be customized for particular applications. Some examples of applications involving procedures are inventory control, payroll, accounting, and preparing mailing lists. In preparing mailing lists of students from your STUDENT file, for example, you could store one command file to prepare a list by zip code and another to prepare a list by name.

Another advantage of using command files is to set up menus for user interaction in executing the various procedures involved in an application.

4. HOW DO COMMAND FILES RELATE TO PROGRAMMING?

A fundamental knowledge of programming theory is necessary to understand how command files are executed. A command file is a sequence of commands, just as a program is a sequence of instructions. The computer will execute the commands as a sequence of instructions. In programming, this concept is referred to as a *sequence structure*. The great advantage of a command file, however, is that you don't have to type commands one at a time. You simply type one command, such as "DO," to execute the program. In the program (or command file) you have the added flexibility of doing some of the commands conditionally. Thus, decision making and menus can be implemented. This concept in programming is referred to as a *selection structure*. Also, if you wish to execute a command or group of commands over and over, a program allows you to automatically continue a procedure. The concept in programming is called a *repetition structure* (loop). You must check your manual to see how these programming concepts are implemented in your command language.

ACTIVITY SHEET

C 12.2

Identify Data Base Management System Concepts and Terms Associated with Command Files

The purpose of this activity is to determine whether or not you have a knowledge of the Data Base Management System terms associated with command files.

sequence
procedure
macro
selection
program
repetition
menu driven

1. A command file may also be called a ________________, a ________________ or a ________________.

2. Commands executed one after another would be an example of a ________________ structure in programming.

3. Commands executed over and over again in a loop would be an example of a ________________ structure in programming.

4. Commands executed conditionally would be an example of a ________________ structure in programming.

5. Command files would probably not be possible in a completely ________________ Data Base Management System.

Activity Sheet Key

C 12.2

Identify Data Base Management System Concepts and Terms Associated With Command Files

1. A command file may also be called a ___procedure,___ a ___macro___ or a ___program___.

2. Commands executed one after another would be an example of a ___sequence___ structure in programming.

3. Commands executed over and over again in a loop would be an example of a ___repetition___ structure in programming.

4. Commands executed conditionally would be an example of a ___selection___ structure in programming.

5. Command files would probably not be possible in a completely ___menu driven___ Data Base Management System.

ACTIVITY SHEET

C 12.3

Identify Command File Techniques for Your System

The purpose of this activity is to determine whether or not you have learned the command file techniques for your system.

1. Does your Data Base Management System system have the capability of creating and using command files?

   ____

2. If the answer to #1 was yes, what is the procedure for creating and saving a command file for your system?

   ____

   ____

   ____

   ____

   ____

3. If the answer to #1 was yes, how do you execute a command file on your system?

   ____

   ____

   ____

Activity Sheet Key

C 12.3

Identify Command File Techniques for Your System

These answers will vary depending upon the type of software being used by the student.

ACTIVITY SHEET

C 12.4

Set Up a Command File

Using your STUDENT file, complete the following activities:

1. Create and save a command file to prepare a mailing list of students sorted by name.
2. Execute the above command file.
3. Create and save a command file to display a menu that allows the user to choose a mailing list sorted by name or a mailing list in regular entry order, or exit from the procedure.
4. Execute the above command file.

The solutions for the above activities are dependent on the software used. The instructor should evaluate accordingly.

AREA:	Data Base Management Systems
LEARNER OUTCOME:	Identify and Complete the Procedures for Setting Up Command Files
LEARNER OUTCOME:	C 12

PERFORMANCE/PRODUCT CHECKLIST

STUDENT ______________________________ PERFORMANCE ATTEMPT 1 2 3 4

EVALUATOR ____________________________ DATE ______________________

EVALUATION SITE ___________________

TERMINAL PERFORMANCE OBJECTIVE:

Given the appropriate software, software manual, and workstation, complete procedures for creating and executing data base command files.

DIRECTIONS TO THE STUDENT:

Before attempting this task for mastery, carefully review this checklist. You will be evaluated on the basis of this checklist. When you feel you are ready for evaluation, contact your instructor. You must complete your performance within 50 minutes and must score at least 4 out of 4 points, or 100%.

DIRECTIONS TO THE EVALUATOR:

The student will contact you when ready for evaluation. The student must complete the performance within 50 minutes and must score 4 out of 4 points, or 100%.

PERFORMANCE/PRODUCT CHECKLIST

C 12

Identify and Complete the Procedures for Setting Up Command Files

Using your STUDENT file, complete the following activities:

CRITICAL ITEMS	ITEMS TO BE OBSERVED OR CHECKED	RATING YES/NO
1.	Create and save a command file to prepare a mailing list of students sorted by zip code.	___ ___
2.	Execute the above command file.	___ ___
3.	Create and save a command file to display a menu which will allow the user to choose a mailing list sorted by name, a mailing list sorted by zip code, or exit from the procedure.	___ ___
4.	Execute the above command file.	___ ___

TOTAL POINTS ___4___

POINTS NEEDED ___4___

SCORE _______

Performance/Product Checklist Key

C 12

Identify and Complete the Procedures for Setting Up Command Files

The answers will vary depending upon the type of software being used by the student.

WRITTEN EXAM

C 12

Identify and Complete the Procedures for Setting up Command Files

The purpose of this exam is to determine whether or not you have understood the information presented on identifying and completing the procedures for setting up command files.

Choose the term that best defines the statement. Place the letter associated with that term in the numbered blank on your answer sheet. To master this task, you must answer 6 out of 7 statements correctly, or 86%.

WRITTEN EXAM

C 12

Identify and Complete the Procedures for Setting up Command Files

1. A data base management system command file is most similar to a

   A. data file
   B. program
   C. report
   D. menu

2. Command files are most likely to be used in

   A. all data base management packages
   B. menu driven Data Base Management System
   C. command driven Data Base Management System
   D. file management systems

3. Which is not an advantage of using command files?

   A. command files can be written by someone having no programming knowledge
   B. avoids repetitive keying
   C. automates procedures
   D. provides for menu driven applications

4. A group of commands to be executed is sometimes called

   A. a data file
   B. a menu
   C. a field
   D. a macro

5. Commands which are executed in a loop would be called a

   A. repetition structure
   B. selection structure
   C. sequence structure
   D. file structure

6. Commands which are executed conditionally, such as when an option is chosen from a menu, would be called a

   A. repetition structure
   B. selection structure
   C. sequence structure
   D. file structure

7. Saving a command file for future use is most similar to the concept of

   A. saving a data file
   B. creating a data base structure
   C. saving a report format
   D. searching a data base

Written Exam Key

C 12

Identify and Complete the Procedure for Setting Up Command Files

1. A data base management system command file is most similar to a

    B. program

2. Command files are most likely to be used in

    C. command driven Data Base Management System

3. Which is not an advantage of using command files?

    A. command files can be written by someone having no programming knowledge

4. A group of commands to be executed is sometimes called

    D. a macro

5. Commands which are executed in a loop would be called a

    A. repetition structure

6. Commands which are executed conditionally, such as when an option is chosen from a menu, would be called a

    B. selection structure

7. Saving a command file for future use is most similar to the concept of

    C. saving a report format

INFORMATION PROCESSING

Area: Data Base Management Systems

Learner Outcome C 13: Evaluate a Data Base Package

Purpose: As a worker in the modern office, you will need to understand the procedure involved in the software evaluation process.

Objective: Given a data base management system package, manual, and evaluation sheet, you will evaluate your data base management system package. To master this task you must score 10 out of 10 points, or 100% on a performance/product checklist.

Estimated Class Time: 1 hour

Learner Outcome C 13

Evaluate a Data Base Package

LEARNING STEPS

READ: Information Sheet C 13.1, "Evaluating a Data Base Package."

COMPLETE: Performance/Product Checklist C 13, "Evaluate a Data Base Package." Contact your instructor.

RESOURCES

C 13

Mandell, Steven L., *Introduction to Computers Using the Apple II*, West Publishing Company, 1985, (different versions for IBM PC and TRS80).

Parker, Charles S., *Understanding Computers and Data Processing: Today and Tomorrow*, Holt, Rinehart, Winston, 1984.

Shelly, Gary B., and Thomas J. Cashman, *Computer Fundamentals for Information Age*, Anaheim, 1984.

Wolff, Terris B., *Microcomputer Applications: Using Small Systems Software*, Boyd, Fraser, 1985.

Data Base User's Manual (See instructor).

EQUIPMENT/SOFTWARE NEEDED

A microcomputer system

A Data Base Management System package

A blank diskette or data diskette

INFORMATION SHEET

C 13.1

Evaluating a Data Base Package

The selection of a data base software package is difficult. Magazines such as Business Computer Systems evaluate these programs and publish comparisons monthly. These evaluations are current and can help in your evaluation process.

There are file management programs and data base management programs. A data base management system can handle more than one file at a time. It can take information from several files and merge the information to give various reports. A file management program can search for different fields on a file, but the file management program can handle only one file at a time. A data base management system can usually handle more information and more complex tasks.

Data base software is either command driven or menu driven. You were introduced to menu and command driven data base software systems in the tasks for this section. In review, the menu-driven software allows you to select from a list of commands to do a specific task. The command-driven programs require that you give the specific command to complete the task. Users who are not familiar with computers or programming may find the menu-driven software easier to use. Menu-driven software is usually slower. Programmers may prefer the command-driven software.

You must remember that even though many software packages are advertised as easy to use or user friendly, time and practice are necessary to learn the use of the package.

When selecting data base software, you must know what you will need to accomplish your task. Will you need to use several files? How are you going to use this data base software?

You should find out how others are using a Data Base Management System and what packages are being used most frequently. The local computer stores are one source of information; the Data Base Management System manual will be another source. Most vendors are very cooperative about demonstrations of software packages. There probably is not a perfect Data Base Management System package so find the one that will best fit your needs. Most vendors are very cooperative about demonstrations of software packages.

AREA: Data Base Management Systems

LEARNER OUTCOME: Evaluate a Data Base Package

LEARNER OUTCOME: C 13

PERFORMANCE/PRODUCT CHECKLIST

STUDENT ______________________________ PERFORMANCE ATTEMPT 1 2 3 4

EVALUATOR ____________________________ DATE ______________________

EVALUATION SITE __________________

TERMINAL PERFORMANCE OBJECTIVE:

Evaluate the data base software package used to complete these learning guides. To do this use the evaluation form found in this Performance/Product Checklist.

DIRECTIONS TO THE STUDENT:

Before attempting this task for mastery, review carefully this checklist. You will be evaluated on the basis of this checklist. When you feel you are ready to be evaluated, contact your instructor. You must complete your performance within 60 minutes and must score at least 10 out of 10 points, or 100%.

DIRECTIONS TO THE EVALUATOR:

The student will contact you when ready for evaluation. The student must complete the performance within 60 minutes and must score 10 out of 10 points accurately or 100% mastery.

PERFORMANCE/PRODUCT CHECKLIST

C 13

Evaluate a Data Base Package

CRITICAL ITEMS	ITEMS TO BE OBSERVED OR CHECKED	RATING YES/NO
	The student identified:	
1.	Software name and description	___ ___
2.	Equipment requirements	___ ___
3.	Software/back up requirements	___ ___
4.	Quality of reference manual	___ ___
5.	Whether software is menu or command driven	___ ___
6.	Limitations for fields, files, and records	___ ___
7.	Whether software package was integrated	___ ___
8.	Features of software package	___ ___
9.	Ease of use	___ ___
10.	Data calculations available	___ ___

TOTAL POINTS 10

POINTS NECESSARY 10

SCORE ______

Evaluation Form

C 13

Evaluate a Data Base Package

1. Software evaluated ______________________________________
2. Software description ____________________________________

   ____

   ____
3. Type of equipment necessary ______________________________

   Single or dual disk drive __________ Amount of memory _____
4. Is the user's manual a good reference source? _____________
5. Is there a tutorial disk/manual included with the package?

   ____
6. Is this menu- command-driven software? ___________________
7. Is it a single file system or multiple file system? ________
8. Can you make a backup copy? _____ If so, how many? _______
9. What is the maximum number of characters per field? _______
10. What is the maximum number of records per file? ___________
11. Is the maximum number of files adequate? _________________
12. Will it work with any other software you have, such as a spreadsheet? ______
13. What features does the package include? __________________

    ____

    ____

    ____

Evaluation Form C 13 (continued)

14. Is it difficult to use the various features? ______________

If it is, indicate why. ______________________________

____

____

____

15. How is help given? ________________________________

____

16. What data calculations can be done with this package?

____

____

____

____

____

COMPUTER BUSINESS GRAPHICS

COMPUTER BUSINESS GRAPHICS

Learner Outcome Number	Learner Outcome
D 1	Define Computer Business Graphics
D 2	Identify Computer Business Graphics Output Devices
D 3	Set up, Create, Edit and Print a Computer Business Graphic Application
D 4	Design and Produce Simple Line, Bar, and Pie Graphs
D 5	Design and Produce Complex, Line, Bar, and Pie Graphs
D 6	Design and Produce Scatter Graphs
D 7	Design and Produce Area Graphs
D 8	Evaluate Computer Business Graphics Software Packages
D 9	Glossary

Computer Business Graphics

Computer business graphics is information that can be presented as pictorial screen displays on the computer monitor or as hard copy in the form of paper, transparencies, 35 mm, video screen, Polaroid pictures, and other media.

Use of business graphics assists office personnel to convey specific information as well as relationships between sets of numeric data.

Reasons for using business graphics software package include the following:

1. allows for preview of information graphically on monitor
2. allows for ease in analyzing information
3. allows for projection of information
4. allows for movement, transfer and/or merger of information pictorially
5. allows for summarization of information

There are several types of graphs, such as; line graphs, bar graphs, pie graphs, scatter graphs, area graphs, and symbolic or pictorial graphs.

Students who successfully complete this area of information processing should be able to do the following:

1. Define Computer Business Graphics
2. Identify Computer Business Graphics Output Devices
3. Set up, Create, Edit, and Print a Computer Business Graphics Application
4. Design and Produce Simple and Complex Line, Bar, and Pie Graphs
5. Design and Produce Scatter Graphs
6. Design and Produce Area Graphs
7. Evaluate Computer Business Graphics Software Packages

INFORMATION PROCESSING

Area: Computer Business Graphics

Learner Outcome D 1: Define Computer Business Graphics

Purpose: As a worker in a modern office, you will need to understand the definition of computer business graphics. In this learning experience you will become familiar with some computer business graphics terminology.

Objective: Given a written exam, you will define and identify various computer business graphics. To master this learner outcome, you must score at least 6 out of 7 points, or 86%.

Estimated Class Time: 1 hour

Learner Outcome D 1

Define Computer Business Graphics

LEARNING STEPS

READ: Information Sheet D 1.1, "Definition of Various Computer Business Graphics."

READ: Information Sheet D 1.2, "Purposes of Various Computer Business Graphics."

READ: One or more of the resources on computer business graphics.

COMPLETE: Activity Sheet D 1.3, "Definition and Purposes of Computer Business Graphics."

READ: Information Sheet D 1.4, "Types of Computer Business Graphics."

COMPLETE: Activity Sheet D 1.5, "Types of Computer Business Graphics.

COMPLETE: Performance/Product Checklist D 1, "Define Computer Business Graphics."

COMPLETE: Written Exam D 1, "Define Computer Business Graphics." Contact your instructor.

RESOURCES

D 1

Cessick, Elizabeth. "Better Business Graphics." Popular Computing. August, 1985, pp. 28, 30, 35.

Cowan, William M. "Business Graphics and New Dimensions to Decision Support." Office Administration and Automation. April, 1985, pp. 32-35, 66.

Daggett, Williard R.; Kamiran S. Badrkhan, and Benedict Kruse. Computer and Information Technology. West Chicago: South-Western Publishing Co., 1985.

IBM Software for IBM Personal Computers. IBM Graphing Assistant. 1984.

Jenkins, Avery. "Graphics Boards." PC Week. August 7, 1984, pp. 50-52, 55-57.

McClain, Larry. "The Guts of Graphics Hardware." Popular Computing. November, 1983, p. 91.

McClain, Larry. "A Guided Tour of Business Graphics." Popular Computing. November, 1983, p. 86-89, 94-95, p. 156.

Mandell, Steven L. Introduction to Computers Using an Apple II. St. Paul: West Publishing Company, 1985.

Merritt, John A. "Graphics Monitors." PC Week. August 7, 1984, pp. 58-60. 62.

Merritt, John A. "Graphics Printers/Plotters." PC Week. August 7, 1984, pp. 64-66, 69.

"Overview." Software Digest Ratings Newsletter, July 1985, pp. 6-11, 74.

Ruby, Daniel and Chris Shipley. "Grpahics Software." PC Week. August 7, 1984, pp. 41-48.

Shelly, Gary B., and Thomas J. Cashman. Computer Fundamentals for an Information Age. Brea, CA: Annaheim Publishing Company, Inc., 1984.

Wolf, Terris E. Microcomputers Applications: Using Small Systems Software. Boston: Boyd & Fraser Publishing Company, 1984.

INFORMATION SHEET

D 1.1

Definition of Various Computer Business Graphics

Computer business graphics is information that can be presented as pictorial screen displays on the computer monitor or as hard copy in the form of paper, transparencies, 35 mm, video screen, Polaroid pictures, and/or other media as available.

Some terminology related to computer business graphics follows:

X-AXIS

The "X-axis" is a reference line always shown along the bottom of the graph as a horizontal line. It normally represents units of time (See example, Figure 1).

Y-AXIS

The "Y-axis" is a reference line always shown as the vertical line on the graph. It measures values or amounts. Each axis (X and Y) is subdivided into regular segments indicated by labels (See Figure 1).

GRID LINE

Grid lines usually run horizontally across the graph and mark the units of measurement (See Figure 2).

TICK MARKS

Tick marks usually are short marks between grid lines that mark units of measurement (See Figure 3).

GRAPHIC LEGENDS

Graphic legends are labels that represent a specific range of values (See Figure 4).

SCALING

Determines the low and high values for the Y-axis. May change this selection if you make modifications in your program.

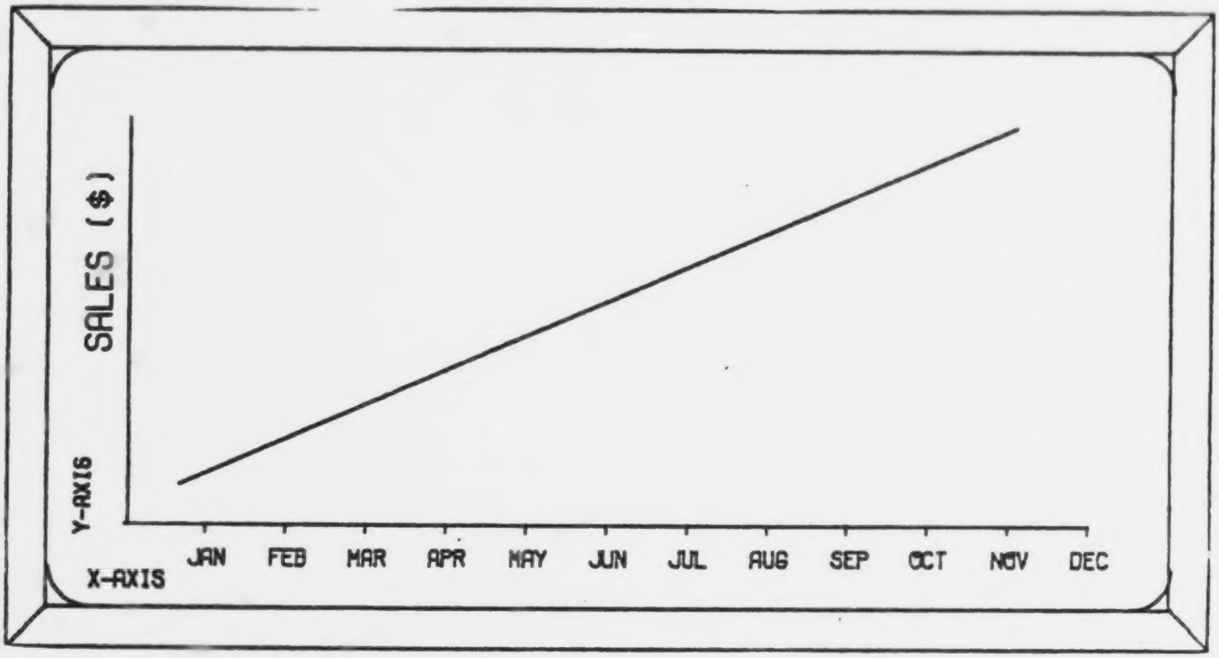

SALES ($)
Y-AXIS
X-AXIS
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC

Figure 1

INFORMATION SHEET D 1.1 (continued)

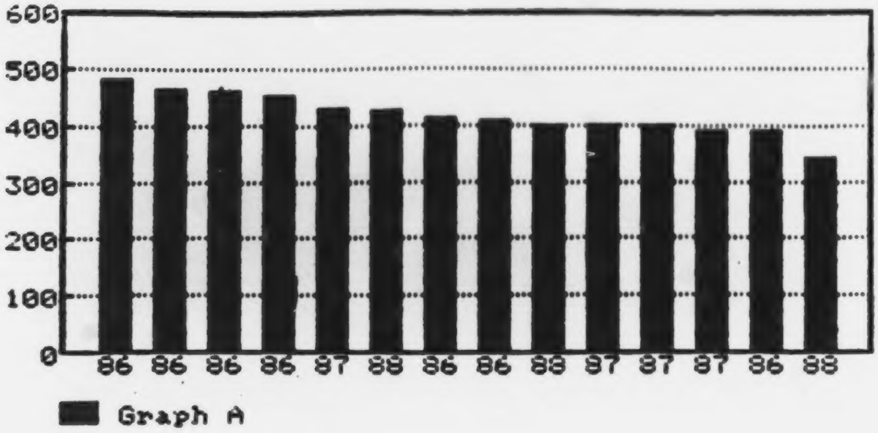


Figure 2

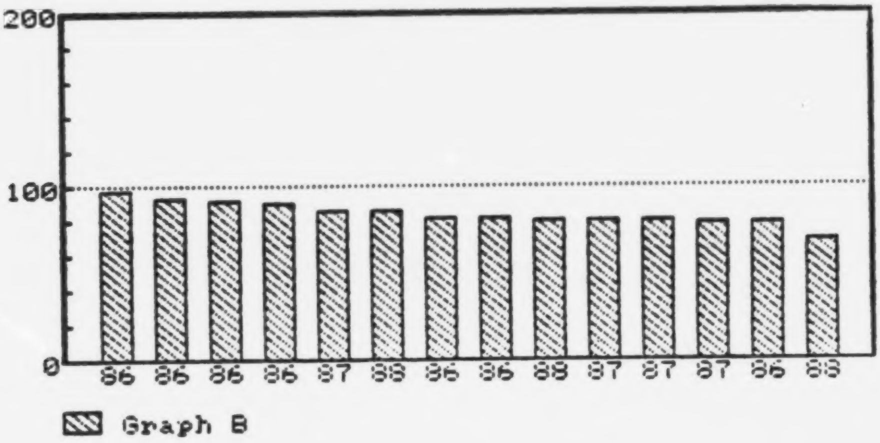


Figure 3

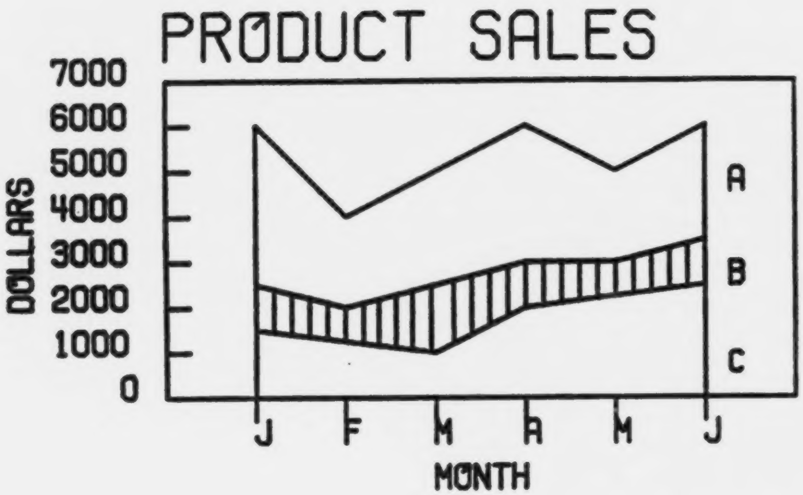

PRODUCT SALES
7000
6000
5000
4000
3000
2000
1000
0
DOLLARS
A
B
C
J
F
M
A
M
J
MONTH

Figure 4

INFORMATION SHEET

D 1.2

Purposes of Various Computer Business Graphics

The purpose of business graphics is to convey specific information as well as relationships between sets of numeric data.

Reasons for using business graphics packages include the following:

1. Allows for preview of information graphically on monitor.
2. Allows for ease in analyzing information.
3. Allows for projection of information.
4. Allows for movement, transfer and/or merger of information pictorially.
5. Allows for summarization of information.

ACTIVITY SHEET

D 1.3

Definition and Purposes of Computer Business Graphics

The purpose of this activity is to determine whether or not you have understood the information on computer business graphics.

Each of the statements is either TRUE or FALSE. Please indicate by circling your response.

TRUE or FALSE

T F 1. Computer business graphics is information that can be presented as pictorial screen displays.

T F 2. Hard copies can be displayed on 35mm film, Polaroid pictures, and paper.

T F 3. The purpose of computer business graphics is to convey pictorially specific information.

T F 4. Computer business graphics allows for ease in analyzing information.

T F 5. Computer business graphics does not allow for projection of information.

T F 6. It is difficult to summarize data using a business graphics package.

T F 7. A shortcoming of computer business graphics is its failure to allow for movement, transfer, and the merging of information.

T F 8. Grid lines run horizontally across the graph and mark the units of measurement.

T F 9. Tick marks are short marks between grid lines.

T F 10. The "X-axis" is always shown as the vertical line.

T F 11. The "Y-axis" measures values or amounts.

T F 12. Hard copy refers to the screen display on the computer monitor.

T F 13. The "X-axis" normally represents units of time.

T F 14. A graphics legend is a label.

Activity Sheet Key

D 1.3

Definition and Purposes of Computer Business Graphics

The purpose of this activity is to determine whether or not you have understood the information on computer business graphics.

Each of the statements is either TRUE or FALSE. Please indicate by circling your response.

TRUE or FALSE

TRUE	1.	Computer business graphics is information that can be presented as pictorial screen displays.
TRUE	2.	Hard copies can be displayed on 35mm film, Polaroid pictures, and paper.
TRUE	3.	The purpose of computer business graphics is to convey pictorially specific information.
TRUE	4.	Computer business graphics allows for ease in analyzing information.
FALSE	5.	Computer business graphics does not allow for projection of information.
FALSE	6.	It is difficult to summarize data using a business graphics package.
FALSE	7.	A shortcoming of computer business graphics is its failure to allow for movement, transfer, and the merging of information.
TRUE	8.	Grid lines run horizontally across the graph and mark the units of measurement.
TRUE	9.	Tick marks are short marks between grid lines.
TRUE	10.	The "X-axis" is always shown as the vertical line.
TRUE	11.	The "Y-axis" measures values or amounts.
FALSE	12.	Hard copy refers to the screen display on the computer monitor.
TRUE	13.	The "X-axis" normally represents units of time.
TRUE	14.	A graphics legend is a label.

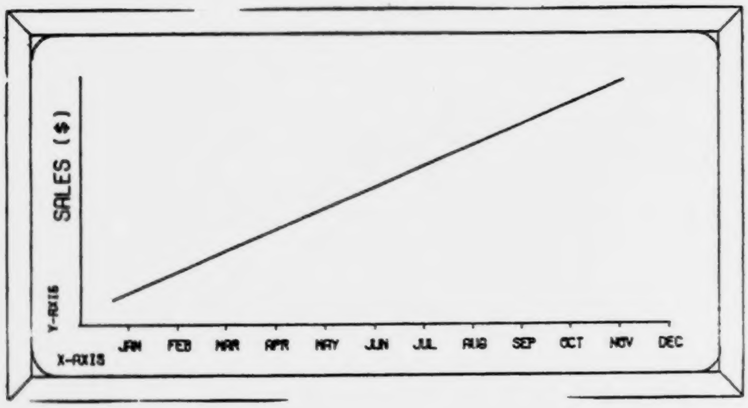
INFORMATION SHEET

D 1.4

Types of Computer Business Graphics

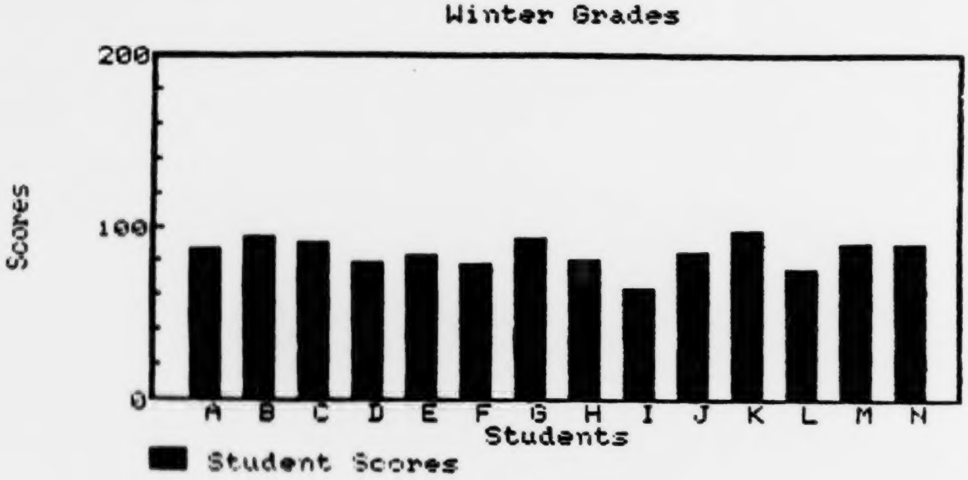
LINE GRAPHS

A line graph is a continuous line used to illustrate trends over a period of time.



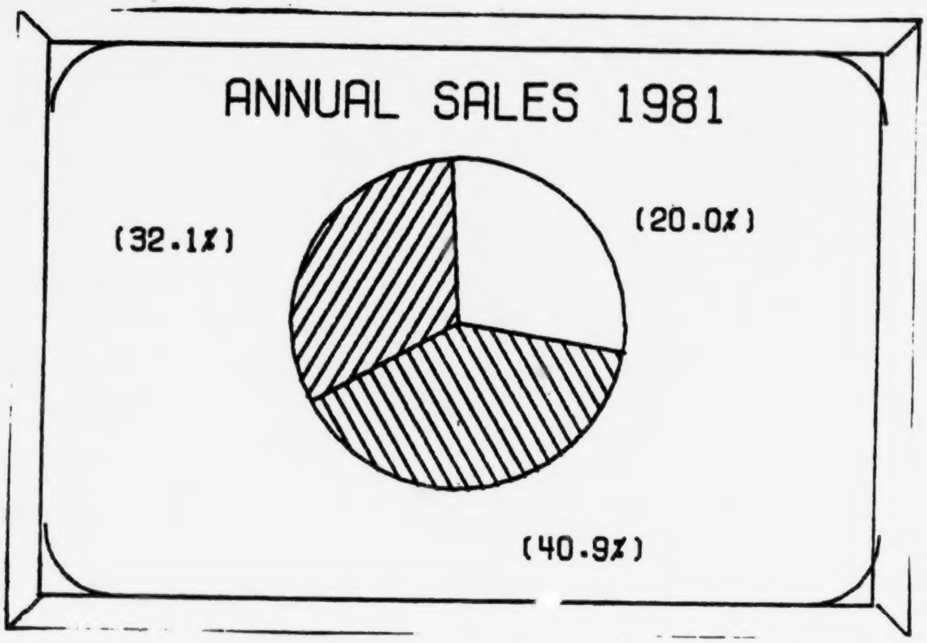
BAR GRAPHS

A bar graph is a chart of bars used to compare adjacent pieces of data and can show individual data items side by side, stacked on top of one another, clustered together, or positioned horizontally. Bar graphs are also known as column charts.



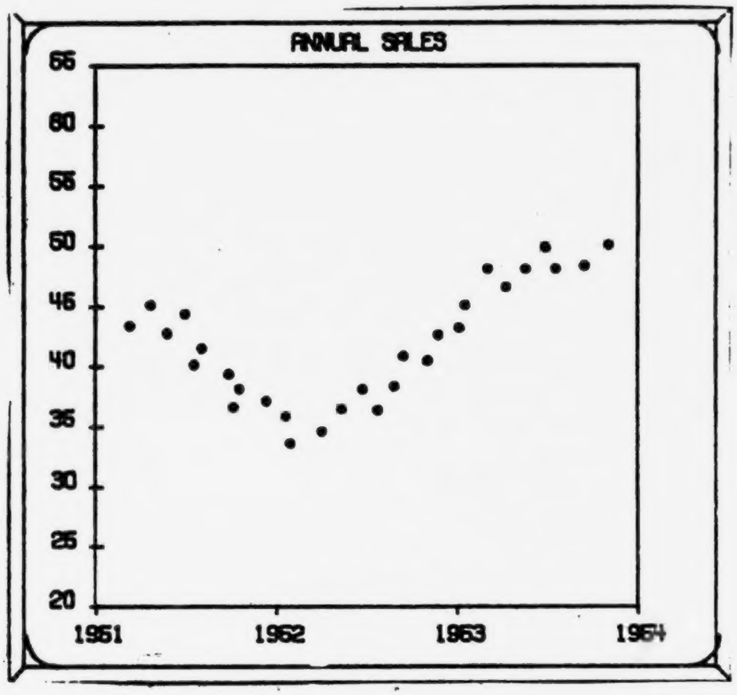
PIE GRAPHS

A pie graph is used to show ratios, that is "slices" in proportion to the whole. The number of "slices" in a pie graph may be restricted, based on the number that can be perceived easily. The "X-axis" values usually determine the number of "slices," and the "Y-axis" values generally determine the width of the "slices."



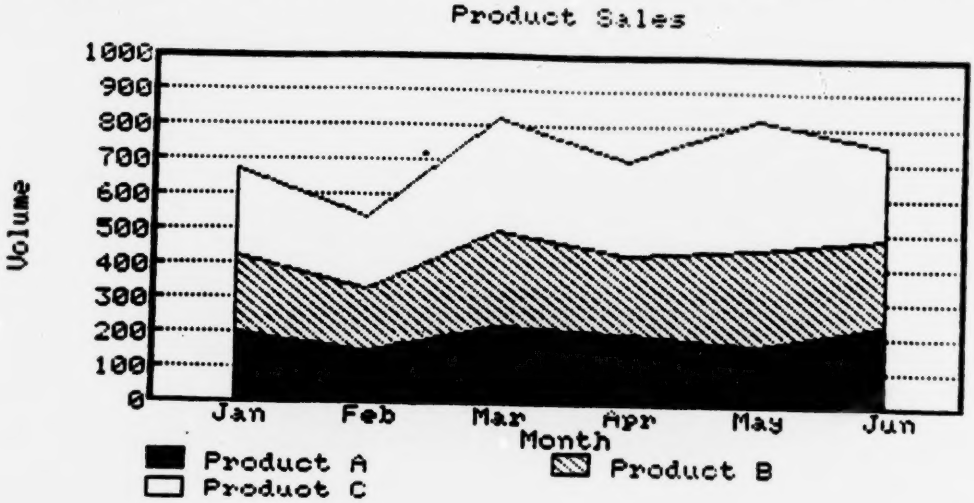
SCATTER GRAPHS

A number of unconnected points may be used to show trends or direction. Scatter graphs are used frequently to show population changes.



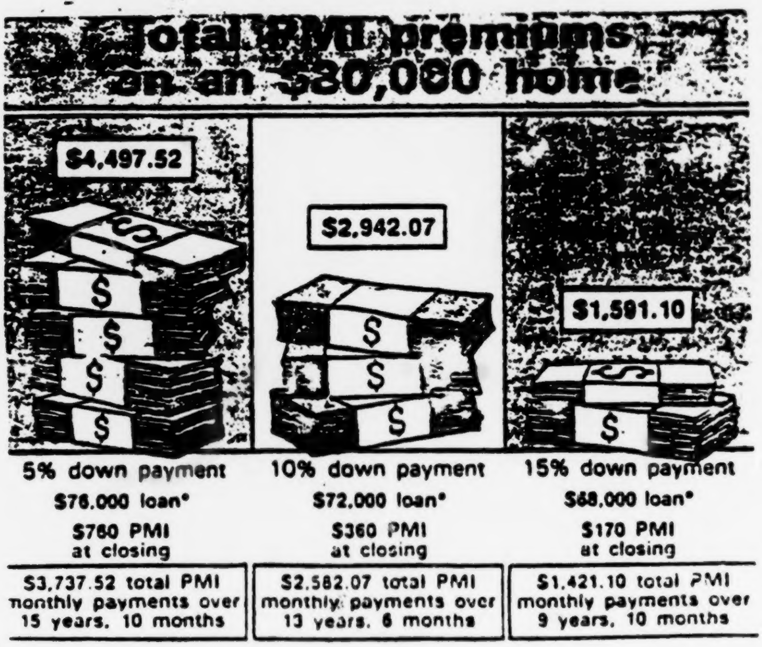
AREA GRAPHS

Area graphs are typically a combination of two line charts with the difference between the two "shaded" to show that difference.



SYMBOLIC or PICTORIAL GRAPHS

Pictorial graphs are simple pictures or figures that are used to represent data by their size or by the amount of space or area used. They usually convey complex ideas.


Total PMI premiums on an $80,000 home
$4,497.52
$2,942.07
$1,591.10
$
$
$
$
$
$
$
$
$
$

5% down payment	10% down payment	15% down payment
$76,000 loan*	$72,000 loan*	$68,000 loan*
$760 PMI at closing	$360 PMI at closing	$170 PMI at closing
$3,737.52 total PMI monthly payments over 15 years, 10 months	$2,582.07 total PMI monthly payments over 13 years, 6 months	$1,421.10 total PMI monthly payments over 9 years, 10 months

ACTIVITY SHEET

D 1.5

Types of Computer Business Graphics

The purpose of this activity is to determine whether or not you have understood the information on computer business graphics.

Each of the questions or statements is either TRUE or FALSE. Please indicate by circling your response.

T F 1. A bar graph is used to illustrate trends over a period of time.

T F 2. A scatter graph is a graph with sets of data stacked on top of one another.

T F 3. A pie graph is used to show ratios.

T F 4. A scatter graph uses dots or periods to show trends or direction.

T F 5. Area graphs are a combination of two or more line charts with the difference between the line charts "shaded" to show that difference.

T F 6. Symbolic graphs are also called pictorial graphs.

Activity Sheet Key

D 1.5

Types of Computer Business Graphics

The purpose of this activity is to determine whether or not you have understood the information on computer business graphics.

Each of the questions or statements is either TRUE or FALSE. Please indicate by circling your response.

FALSE 1. A bar graph is used to illustrate trends over a period of time.

FALSE 2. A scatter graph is a graph with sets of data stacked on top of one another.

TRUE 3. A pie graph is used to show ratios.

TRUE 4. A scatter graph uses dots or periods to show trends or direction.

TRUE 5. Area graphs are a combination of two or more line charts with the difference between the line charts "shaded" to show that difference.

TRUE 6. Symbolic graphs are also called pictorial graphs.

AREA: Computer Business Graphics

LEARNER OUTCOME: Define Computer Business Graphics

LEARNER OUTCOME: D 1

PERFORMANCE/PRODUCT CHECKLIST

STUDENT ______________________________ PERFORMANCE ATTEMPT 1 2 3 4

EVALUATOR ____________________________ DATE _____________________

EVALUATION SITE ____________

TERMINAL PERFORMANCE OBJECTIVE:

Give a written exam, you will define and identify various computer business graphics.

DIRECTIONS TO THE STUDENT:

Before attempting this task for mastery, carefully review the material in this learner outcome. When you feel you are ready for evaluation, contact your instructor. You must complete your performance within 30 minutes and must score at least 6 out of 7 points, or 86%.

DIRECTIONS TO THE EVALUATOR:

The student will contact you when ready for evaluation. The student must complete the performance within 30 minutes and must score 6 out of 7 points, or 86%.

WRITTEN EXAM

D 1

Define Computer Business Graphics

The purpose of this activity is to determine whether or not you have understood the information presented on computer business graphics.

Each of the incomplete statements on the next page is followed by several words, or phrases. Choose the one that best completes the statement correctly. Write the letter associated with that choice (a, b, c, or d) in the numbered blank space on your examination. To master this examination, you must answer 6 out of 7 items correctly, or 86%.

WRITTEN EXAM

D 1

Define Computer Business Graphics

_____ 1. The X-axis is a

- a. vertical line
- b. tick mark
- c. horizontal line
- d. legend

_____ 2. The Y-axis is a

- a. vertical line
- b. grid line
- c. legend
- d. horizontal line

_____ 3. Graphic legends are

- a. tables
- b. labels
- c. lines
- d. stories

_____ 4. Hard copy refers to

- a. screen image
- b. floppy disk
- c. monitor disk
- d. printout

_____ 5. Bar graphs

- a. are always stacked
- b. show ratios
- c. are continuous lines
- d. also are known as column charts

_____ 6. Line graphs

- a. are always stacked
- b. show ratios
- c. are continuous lines
- d. also are known as column charts

_____ 7. Pie graphs

a. are always stacked
b. show ratios
c. are continuous lines
d. are also known as column charts

Written Exam Key

D 1

Define Computer Business Graphics

C 1. The X-axis is a

c. horizontal line

A 2. The Y-axis is a

a. vertical line

B 3. Graphic legends are

b. labels

D 4. Hard copy refers to

d. printout

D 5. Bar graphs

d. also are know as column charts

C 6. Line graphs

c. are continuous lines

B 7. Pie graphs

b. show ratios

INFORMATION PROCESSING

Area: Computer Business Graphics

Learner Outcome D 2: Identify Computer Business Graphics Output Devices

Purpose: As a worker in the modern office, you will need to identify computer business graphics output devices.

Objective: Given a written exam, you will identify display devices and machines used in computer business graphics. To master this learner outcome, you must score at least 6 out of 7 points correctly, or 86%.

Estimated Class Time: 2 hrs.

Learner Outcome D 2

Identify Computer Business Graphics Output Devices

LEARNING STEPS

READ: Information Sheet D 2.1, "Identify Computer Business Graphics Output Devices."

READ: One or more of the resources on output devices.

COMPLETE: Activity Sheet D 2.2, "Computer Business Graphics Output Devices."

COMPLETE: Performance/Product Checklist D 2, "Identify Computer Business Graphics Output Devices."

COMPLETE: Written Exam D 2, "Computer Business Graphics Output Devices." Contact your instructor.

RESOURCES

D 2

Cessick, Elizabeth. "Better Business Graphics." Popular Computing. August, 1985, pp. 28, 30, 35.

Cowan, William M. "Business Graphics and New Dimensions to Decision Support." Office Administration and Automation. April, 1985, pp. 32-35, 66.

Daggett, Williard R.; Kamiran S. Badrkhan, and Benedict Kruse. Computer and Information Technology. West Chicago: South-Western Publishing Co., 1985.

IBM Software for IBM Personal Computers. IBM Graphing Assistant. 1984.

Jenkins, Avery. "Graphics Boards." PC Week. August 7, 1984, pp. 50-52, 55-57.

McClain, Larry. "The Guts of Graphics Hardware." Popular Computing. November, 1983, p. 91.

McClain, Larry. "A Guided Tour of Business Graphics." Popular Computing. November, 1983, p. 86-89, 94-95, p. 156.

Mandell, Steven L. Introduction to Computers Using an Apple II. St. Paul: West Publishing Company, 1985.

Merritt, John A. "Graphics Monitors." PC Week. August 7, 1984, pp. 58-60, 62.

Merritt, John A. "Graphics Printers/Plotters." PC Week. August 7, 1984, pp. 64-66, 69.

"Overview." Software Digest Ratings Newsletter, July 1985, pp. 6-11, 74.

Ruby, Daniel and Chris Shipley. "Grpahics Software." PC Week. August 7, 1984, pp. 41-48.

Shelly, Gary B., and Thomas J. Cashman. Computer Fundamentals for an Information Age. Brea, CA: Annaheim Publishing Company, Inc., 1984.

Wolf, Terris B. Microcomputers Applications: Using Small Systems Software. Boston: Boyd & Fraser Publishing Company, 1984.

INFORMATION SHEET

D 2.1

Identify Computer Business Graphics Output Devices

OUTPUT DEVICES

Output devices are the display devices and machines that are used to produce screen images and hard copies of graphs, charts, and images created by graphics programs. Numerous types of display devices, printers, and plotters are available.

MAIN CATEGORIES

DISPLAY DEVICES

THE CATHODE RAY TUBE OR MONITOR (CRT) is the most common type used. It is similar to the picture tube of a television set. Text and graphic displays come from the computer's memory.

THE FLAT PANEL DISPLAY may be a Liquid Crystal Display (LCD), AC plasma, or others. They are growing in popularity because of the trend of "lap-type" computers. This type of display decreases the size and weight of the computer. Some flat panel displays are being used, but the quality of the screen is of concern to the user.

HARD COPY DEVICES

Dot matrix, laser, and ink-jet printers may be used for graphics. However, the printer is generally used as an output graphics device in word processing applications. Speed and number of colors used are important in the selection process. Less graphics software is available for printers than for plotters.

PLOTTERS are devices that draw lines with ink pens on paper and transparencies. They present a better image than the dot matrix printer. Plotters cannot be used for word processing applications.

FILM RECORDERS (35 mm photography and Polaroid photography) can be used as output devices. High quality display monitors are essential since a camera is focused on the face of the CRT photograph images as they are generated by the computer. Many TV commercials and animated cartoons are thus created. This technique is also used for magazine and book illustrations.

ACTIVITY SHEET

D 2.2

Computer Business Graphics Output Devices

The purpose of this activity is to determine whether or not you have understood the information on computer business graphics output devices.

Each of the statements is either TRUE or FALSE. Please indicate by circling your response.

T F 1. Output devices are machines that are used to make "hard copies" of business graphics data.

T F 2. The two categories of display devices available for graphics are flat panel and CRT.

T F 3. Text and graphic displays are produced from within the computer's memory.

T F 4. Flat panel display is a powdered display process.

T F 5. The flat panel display is growing in popularity due to its decrease of eye fatigue and strain.

T F 6. The Cathode Ray Tube (CRT) is the most common display device.

T F 7. Plotters may be used for word processing applications.

T F 8. Plotters produce a better image than dot matrix printers.

T F 9. TV commercials may be created on film recorders.

T F 10. The CRT is similar to the picture tube of a television set.

Activity Sheet Key

D 2.2

Computer Business Graphics Output Devices

The purpose of this activity is to determine whether or not you have understood the information on computer business graphics output devices.

Each of the statements is either TRUE or FALSE. Please indicate by circling your response.

TRUE 1. Output devices are machines that are used to make "hard copies" of business graphic data.

TRUE 2. The two categories of display devices available for graphics are flat panel and CRT.

TRUE 3. Text and graphic displays are produced from within the computer's memory.

FALSE 4. Flat panel display is a powdered display process.

FALSE 5. The flat panel display is growing in popularity due to its decrease of eye fatigue and strain.

TRUE 6. The Cathode Ray Tube (CRT) is the most common display device.

FALSE 7. Plotters may be used for word processing applications.

TRUE 8. Plotters produce a better image than dot matrix printers.

TRUE 9. TV commercials may be created on film recorders.

TRUE 10. The CRT is similar to the picture tube of a television set.

AREA:	Computer Business Graphics
LEARNER OUTCOME:	Identify Computer Business Graphics Output Devices
LEARNER OUTCOME:	D 2

PERFORMANCE/PRODUCT CHECKLIST

STUDENT ______________________________ PERFORMANCE ATTEMPT 1 2 3 4

EVALUATOR ____________________________ DATE ______________________

EVALUATION SITE ___________

TERMINAL PERFORMANCE OBJECTIVE:

Given a written exam, you will identify display devices and machines used in computer business graphics.

DIRECTIONS TO THE STUDENT:

Before attempting this task for mastery, carefully review the information in this learner outcome. When you feel you are ready for evaluation, contact your instructor. You must complete your performance within __30__ minutes and must score at least 6 out of 7 points, or 86%

DIRECTIONS TO THE EVALUATOR:

The student will contact you when ready for evaluation. The student must complete the performance within 30 minutes and must score 6 out of 7 points, or 86%.

WRITTEN EXAM

D 2

Computer Business Graphics Output Devices

The purpose of this activity is to determine whether or not you have understood the information presented on identifying computer business graphics output devices.

Each of the incomplete statements on the next page is followed by several words, or phrases. Choose the one that best completes the statement correctly. Place the letter associated with that choice (a, b, c, or d) in the numbered blank space on your examination copy. To master this exam, you must answer at least 6 out of 7 questions correctly, or 86%.

WRITTEN EXAM

D 2

Computer Business Graphics Output Devices

___ 1. The CRT is similar to a

a.) camera
b.) printer
c.) picture tube
d.) disk drive

___ 2. The most common display device is the

a.) CRT
b.) camera
c.) plotter
d.) printer

___ 3. A computer device that may be used to make TV commercials is the

a.) flat panel display
b.) CRT
c.) plotter
d.) film recorder

___ 4. To print high-quality graphics, the best choice is

a.) color matrix printer
b.) dot matrix printer
c.) plotter
d.) CRT

___ 5. Plotters may NOT be used for

a.) drawing lines with ink on paper
b.) word processing
c.) drawing lines with ink on transparencies
d.) drawing images

___ 6. A disadvantage of Flat Panel Display devices is the

a.) light weight
b.) quality of the screen
c.) flat surface
d.) portability

___ 7. A category of machines NOT generally available for computer business graphics output is

a.) CRT
b.) flat panel display
c.) daisy wheel printer
d.) camera

Written Exam Key

D 2

Computer Business Graphics Output Devices

_c_ 1. The CRT is similar to a

c. picture tube

_a_ 2. The most common display device is the

a. CRT

_d_ 3. A computer device that may be used to make TV commercials is the

d. film recorder

_c_ 4. To print high-quality graphics, the best choice is

c. plotter

_b_ 5. Plotters may NOT be used for

b. word processing

_b_ 6. A disadvantage of Flat Panel Display devices is the

b. quality of the screen

_c_ 7. A category of machines NOT generally available for computer business graphic output is

c. daisy wheel printer

INFORMATION PROCESSING

Area: Computer Business Graphics

Learner Outcome D 3: Set up, Create, Edit, and Print a Computer Business Graphics Application

Purpose: As a worker in the modern office, you will need to know how to set up, create, edit, and print business graphics applications. In this learner outcome you will set up, create, edit, and print a business graphics application.

Objective: Given the necessary software package, you will be able to set up, create, edit, and print a business graphics application. To master this learner outcome, you must score 12 out of 12 points, or 100% on a performance/product checklist.

Estimated Class Time: 2 hrs.

Learner Outcome D 3

Set Up, Create, Edit and Print a Computer Business Graphics Application

LEARNING STEPS

READ: Information Sheet D 3.1, "Set Up, Create, Edit, and Print a Computer Business Graphics Application."

READ: One or more of the resources on setting up, creating, editing, and printing a computer business graphics application.

OBSERVE: Instructor-led demonstration.

COMPLETE: Activity Sheet D 3.2, "Set Up, Create, Edit and Print a Computer Business Graphics Application."

COMPLETE: Performance/Product Checklist D 3, "Set Up, Create, Edit, and Print a Computer Business Graphics Application." Contact your instructor.

RESOURCES

D 3

Cessick, Elizabeth. "Better Business Graphics." *Popular Computing*. August, 1985, pp. 28, 30, 35.

Cowan, William M. "Business Graphics and New Dimensions to Decision Support." *Office Administration and Automation*. April, 1985, pp. 32-35, 66.

Daggett, Williard R.; Kamiran S. Badrkhan, and Benedict Kruse. *Computer and Information Technology*. West Chicago: South-Western Publishing Co., 1985.

IBM Software for IBM Personal Computers. *IBM Graphing Assistant*. 1984.

Jenkins, Avery. "Graphics Boards." *PC Week*. August 7, 1984, pp. 50-52, 55-57.

McClain, Larry. "The Guts of Graphics Hardware." *Popular Computing*. November, 1983, p. 91.

McClain, Larry. "A Guided Tour of Business Graphics." *Popular Computing*. November, 1983, p. 86-89, 94-95, p. 156.

Mandell, Steven L. *Introduction to Computers Using an Apple II*. St. Paul: West Publishing Company, 1985.

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Merritt, John A. "Graphics Printers/Plotters." *PC Week*. August 7, 1984, pp. 64-66, 69.

"Overview." *Software Digest Ratings Newsletter*, July 1985, pp. 6-11, 74.

Ruby, Daniel and Chris Shipley. "Grpahics Software." *PC Week*. August 7, 1984, pp. 41-48.

Shelly, Gary B., and Thomas J. Cashman. *Computer Fundamentals for an Information Age*. Brea, CA: Annaheim Publishing Company, Inc., 1984.

Wolf, Terris B. *Microcomputers Applications: Using Small Systems Software*. Boston: Boyd & Fraser Publishing Company, 1984.

INFORMATION SHEET

D 3.1

Set Up, Create, Edit, and Print a Computer Business Graphics Application

The steps necessary to use business computer graphics software are:

1. START: Select appropriate hardware; i.e., computer, printer, or plotter; and load DOS and applications software.
2. CREATE: Enter data or retrieve data already stored. Execute commands to create a graph.
3. EDIT: Check and/or change stored data.
4. PRINT: Provide a hard copy.

ACTIVITY SHEET

D 3.2

Set Up, Create, Edit, and Print a Computer Business Graphics Application

The purpose of this activity is to determine whether or not you understood how to set up, create, edit, and print business graphics applications.

Follow the steps below, referring to computer business graphics software package handbook when needed:

1. Load the computer business graphics package that will be used to create, edit, and print a graphics application.
2. Access the menu or execute commands that will allow you to enter data to create a graph.
3. Input this data, which shows sales for third week in July. The X-data range is the dates; the Y-data range is the amounts:

JULY 22	$150.00
JULY 23	$120.00
JULY 24	$130.00
JULY 25	$ 90.00
JULY 26	$110.00

4. Edit and save the data entered above representing sales for the third week in July.
5. Print a line graph on a computer business graphics output device, provided by the instructor, using the print command given in your computer business graphics software package for a line graph.
6. Using the same data, print a bar graph on a computer business graphics output device, provided by instructor, using the print command given in your computer business software package for a bar graph.
7. Using the same data, print a pie graph on a computer business graphics output device, provided by the instructor, using the print command given in your computer business graphics software package for a pie graph.

Note: If computer business graphics software package allows, print the following additional computer business graphics forms:

ACTIVITY SHEET D 3.2 (continued)

8. Using the same data, print an area graph on a computer business graphics output device, provided by the instructor, using the print command given in your computer business graphics software package for an area graph.

9. Using the same data, print a scatter graph on a computer business graphics output device, provided by the instructor, using the print command given in your computer business graphics software package for a scatter graph.

AREA: Computer Business Graphics

LEARNER OUTCOME: Set up, Create, Edit and Print a Computer Business Graphics Application

LEARNER OUTCOME: D 3

PERFORMANCE/PRODUCT CHECKLIST

STUDENT ______________________________ PERFORMANCE ATTEMPT 1 2 3 4

EVALUATOR ______________________________ DATE ______________________

EVALUATION SITE ____________

TERMINAL PERFORMANCE OBJECTIVE:

Given the necessary software package, you will set up, create, edit, and print a business graphics application.

DIRECTIONS TO THE STUDENT:

Before attempting this task for mastery, carefully review this checklist. You will be evaluated on the basis of this checklist. When you feel you are ready for evaluation, contact your instructor. You must complete your performance within __45__ minutes and must score at least 12 out of 12 points, or 100%. Critical items are marked with an asterisk (*). These items must be satisfactorily completed.

DIRECTIONS TO THE EVALUATOR:

The student will contact you when ready for evaluation. The student must complete the performance within 45 minutes and must score 12 out of 12 points, or 100%; all items marked with an asterisk (*) must be satisfactorily completed.

PERFORMANCE/PRODUCT CHECKLIST

D 3

PROBLEM

Input the following data for the third week of August:

August 23	$155.00
August 24	125.00
August 25	135.00
August 26	95.00
August 27	115.00

The X-data range is the dates; the Y-dates range is the amounts.

Save the data.

Display and print a line graph, a bar graph, and a pie graph.

PERFORMANCE/PRODUCT CHECKLIST

D 3

Set Up, Create, Edit and Print a Computer Business Graphics Application

CRITICAL ITEMS	ITEMS TO BE OBSERVED OR CHECKED	RATING YES/NO
*1.	Did you load the program?	
*2.	Did you access the menu?	
*3.	Did you enter the data?	
*4.	Is the Y-axis information entered properly?	
*5.	Is the X-axis information entered properly?	
*6.	Did you save?	
7.	Did you display the line graph?	
*8.	Did you print the line graph?	
9.	Did you display the bar graph?	
*10.	Did you print the bar graph?	
11.	Did you display the pie graph?	
*12.	Did you print the pie graph?	

TOTAL POINTS POSSIBLE 12

POINTS NEEDED 12

SCORE ______

INFORMATION PROCESSING

Area: Computer Business Graphics

Learner Outcome D 4: Design and Produce Simple Line, Bar, and Pie Graphs

Purpose: As a worker in the modern office, you will need to design and produce line, bar, and pie graphs. In this component you will increase your skill in designing and producing line, bar, and pie graphs.

Objective: Given a workstation, computer business graphics software, and necessary information, you will be able to design and produce simple line, bar, and pie graphs. To master this learner outcome, you will score at least 10 out of 13 points, or 77% on a performance/product checklist.

Estimated Class Time: 1 hour

Learner Outcome D 4

Design and Produce Simple Line, Bar, and Pie Graphs

LEARNING STEPS

READ AND COMPLETE: Activity Sheet D 4.1, "Design and Produce Simple Line, Bar, and Pie Graphs."

COMPLETE: Activity Sheet D 4.2, "Design and Produce Simple Line, Bar, and Pie Graphs.

COMPLETE: Performance/Product Checklist D 4, "Design and Produce Simple Line, Bar, and Pie Graphs." Contact your instructor.

RESOURCES

D 4

Cessick, Elizabeth. "Better Business Graphics." *Popular Computing*. August, 1985, pp. 28, 30, 35.

Cowan, William M. "Business Graphics and New Dimensions to Decision Support." *Office Administration and Automation*. April, 1985, pp. 32-35, 66.

Daggett, Williard R.; Kamiran S. Badrkhan, and Benedict Kruse. *Computer and Information Technology*. West Chicago: South-Western Publishing Co., 1985.

IBM Software for IBM Personal Computers. *IBM Graphing Assistant*. 1984.

Jenkins, Avery. "Graphics Boards." *PC Week*. August 7, 1984, pp. 50-52, 55-57.

McClain, Larry. "The Guts of Graphics Hardware." *Popular Computing*. November, 1983, p. 91.

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Mandell, Steven L. *Introduction to Computers Using an Apple II*. St. Paul: West Publishing Company, 1985.

Merritt, John A. "Graphics MOnitors." *PC Week*. August 7, 1984, pp. 58-60, 62.

Merritt, John A. "Graphics Printers/Plotters." *PC Week*. August 7, 1984, pp. 64-66, 69.

"Overview." *Software Digest Ratings Newsletter*, July 1985, pp. 6-11, 74.

Ruby, Daniel and Chris Shipley. "Grpahics Software." *PC Week*. August 7, 1984, pp. 41-48.

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Wolf, Terris B. *Microcomputers Applications: Using Small Systems Software*. Boston: Boyd & Fraser Publishing Company, 1984.

ACTIVITY SHEET

D 4.1

Design and Produce Simple Line, Bar, and Pie Graphs

The purpose of this activity is to determine whether or not you have understood how to design and produce simple line, bar, and pie graphs.

Use the computer business graphics software package provided by the instructor to produce a simple line graph.

GUIDED STEPS*

1. Create a line graph of the following data, using as a guide the computer business graphics software package provided by the instructor. Remember to save the document.

X-Data Year	Y-Data Sales
1975	$46,000
1976	$49,000
1977	$51,200
1978	$52,800
1979	$53,000
1980	$54,100
1981	$55,300
1982	$55,600
1983	$56,100
1984	$57,625

a. Load the program.

b. Access the menu command to enter data on graphs.

c. Select line graph creation.

d. Name the graph.

e. Enter data for the X-axis.

f. Enter data for the Y-axis.

g. Edit data for accuracy.

h. Edit data for correct axis entry.

ACTIVITY SHEET D 4.1 (continued)

i. Save data.

j. Display graph on the monitor if this function is available on your equipment.

k. Make a copy of the graph using the output device available.

* Steps may vary depending on software package.

2. Create a bar graph, using the data in Step 1 and the computer business graphics software packages provided by your instructor. Remember to save the document. Please read carefully the instructions for retrieval of the document saved and the instructions for producing a bar graph.

FOLLOW A THROUGH K OF STEP 1

In Step C, remember to select "Create a bar graph." The other steps remain the same.

ACTIVITY SHEET

D 4.2

Design and Produce Simple Line, Bar and Pie Graphs

The purpose of this activity is to design and produce simple line, bar, and pie graphs.

Complete the following computer business graphics application according to the procedure you learned in D 4.1, Step 1.

1. Create two simple line graphs using the following data:

a.

X-Data Item	Y-Data Number
Warm Ups	65
Sweat Pants	40
Sweat Shirts	50
Shorts	30
Bowling Balls	45
Bowling Bags	20
Bowling Gloves	25
Bowling Shoes	120

b.

X-Data Item	Y-Data Profit
1978	$1,700
1979	$2,200
1980	$2,910
1981	$3,200
1982	$4,625
1983	$5,215
1984	$6,624
1985	$8,115

2. Create two simple bar graphs using the data in a and b.

3. Create two simple pie graphs using the y-data in a and b.

AREA: Computer Business Graphics

LEARNER OUTCOME: Design and Produce Simple Line, Bar, and Pie Graphs

LEARNER OUTCOME: D 4

PERFORMANCE/PRODUCT CHECKLIST

STUDENT ______________________________ PERFORMANCE ATTEMPT 1 2 3 4

EVALUATOR ____________________________ DATE ______________________

EVALUATION SITE ____________________

TERMINAL PERFORMANCE OBJECTIVE:

Given a workstation, computer business software, and the necessary information, design and produce simple, line, bar, and pie graphs.

DIRECTIONS TO THE STUDENT:

Before attempting this performance for mastery, carefully review this checklist. You will be evaluated on the basis of this checklist. When you feel you are ready for evaluation, contact your instructor. You must complete your performance within 30 minutes and must score at least 10 out of 13 points, or 77% for mastery. All items marked with an asterisk (*) must be satisfactorily completed.

DIRECTIONS TO THE EVALUATOR:

The student will contact you when ready for evaluation. The student must complete the performance within 30 minutes and must score at least 10 out of 13 points, or 77% for mastery. All items marked with an asterisk (*) must be satisfactorily completed.

PERFORMANCE/PRODUCT CHECKLIST

D 4

Design and Produce Simple Line, Bar, and Pie Graphs

Use the following data:

Computer	Number
TRS80 Model III	15
IBM PC	10
COMPAQ	5
APPLE IIe	10
COMMODORE	12

CRITICAL ITEM	ITEMS TO BE OBSERVED	RATING YES/NO
*1.	Did you load the program?	___ ___
*2.	Did you access the menu?	___ ___
*3.	Did you enter the data?	___ ___
*4.	Is the Y-axis information entered properly?	___ ___
*5.	Is the X-axis information entered properly?	___ ___
*6.	Did you edit where necessary?	___ ___
*7.	Did you save?	___ ___
8.	Did you display the line graph on the monitor?	___ ___
*9.	Did you print the line graph?	___ ___
10.	Did you display the bar graph?	___ ___
*11.	Did you print the bar graph?	___ ___
12.	Did you display the pie graph?	___ ___
*13.	Did you print the pie graph?	___ ___

PERFORMANCE/PRODUCT CHECKLIST D 4 (continued)

TOTAL POINTS POSSIBLE 13

POINTS NEEDED 10

SCORE ______

INFORMATION PROCESSING

Area: Computer Business Graphics

Learner Outcome D 5: Design and Produce Complex Line, Bar, and Pie Graphs

Purpose: As a worker in the modern office, you will need to design and produce complex line, bar, and pie graphs. In this performance you will increase your skill in designing and producing line, bar, and pie graphs.

Objective: Given a workstation with computer business graphics software and necessary information, you will design and produce complex line, bar, and pie graphs. To master this learner outcome, you must score at least 15 out of 15 points, or 100% on a performance/product checklist.

Estimated Class Time: 3 hrs.

Learner Outcome D 5

Design and Produce Complex Line, Bar, and Pie Graphs

LEARNING STEPS

READ:	Information Sheet D 5.1, "Designing and Producing Complex Graphs."
COMPLETE:	Activity Sheet D 5.2, "Designing and Producing Complex Graphs."
COMPLETE:	Activity Sheet D 5.3, "Designing and Producing a Complex Line Graph."
COMPLETE:	Activity Sheet D 5.4, "Designing and Producing a Complex Bar Graph.
COMPLETE:	Activity Sheet D 5.5, "Designing and Producing a Complex Pie Graph.
COMPLETE:	Performance/Product Checklist D 5 "Design and Produce Complex Line, Bar and Pie Graphs." Contact your instructor.

RESOURCES

D 5

Cessick, Elizabeth. "Better Business Graphics." *Popular Computing*. August, 1985, pp. 28, 30, 35.

Cowan, William M. "Business Graphics and New Dimensions to Decision Support." *Office Administration and Automation*. April, 1985, pp. 32-35, 66.

Daggett, Williard R.; Kamiran S. Badrkhan, and Benedict Kruse. *Computer and Information Technology*. West Chicago: South-Western Publishing Co., 1985.

IBM Software for IBM Personal Computers. *IBM Graphing Assistant*. 1984.

Jenkins, Avery. "Graphics Boards." *PC Week*. August 7, 1984, pp. 50-52, 55-57.

McClain, Larry. "The Guts of Graphics Hardware." *Popular Computing*. November, 1983, p. 91.

McClain, Larry. "A Guided Tour of Business Graphics." *Popular Computing*. November, 1983, p. 86-89, 94-95, p. 156.

Mandell, Steven L. *Introduction to Computers Using an Apple II*. St. Paul: West Publishing Company, 1985.

Merritt, John A. "Graphics MOnitors." *PC Week*. August 7, 1984, pp. 58-60, 62.

Merritt, John A. "Graphics Printers/Plotters." *PC Week*. August 7, 1984, pp. 64-66, 69.

"Overview." *Software Digest Ratings Newsletter*, July 1985, pp. 6-11, 74.

Ruby, Daniel and Chris Shipley. "Grpahics Software." *PC Week*. August 7, 1984, pp. 41-48.

Shelly, Gary B., and Thomas J. Cashman. *Computer Fundamentals for an Information Age*. Brea, CA: Annaheim Publishing Company, Inc., 1984.

Wolf, Terris B. *Microcomputers Applications: Using Small Systems Software*. Boston: Boyd & Fraser Publishing Company, 1984.

INFORMATION SHEET

D 5.1

Designing and Producing Complex Graphs

In order to prepare complex graphs, you will need to familiarize yourself with the following functions:

1. Entering titles, legends and labels. This is entering information that identifies the parts of the graph.
2. Formatting--arranging information in proper form
3. Merging--combining files
4. Retrieving--calling up graphs previously saved
5. Displaying--showing the graph on the monitor (may not be possible on all systems)
    a. Entering titles, legends, labels
    b. Formatting more than two columns
    c. Calculating totals horizontally
    d. Calculating totals vertically
    e. Merging data from files
    f. Retrieving data from files
    g. Producing a graph that shows summarized data created from existing files
    h. Generating several pie graphs that can be compared

Some computer business graphics software packages may also have other specialized functions such as automatic decimal placement and dollar signs. For specific information, refer to your computer business graphics software package manual.

ACTIVITY SHEET

D 5.2

Designing and Producing Complex Graphs

The purpose of this activity is to determine whether or not you have understood the information you have read on designing and producing complex graphs.

Each of the statements is either TRUE or FALSE. Circle T if the statement is true; circle F if the statement is false.

T F 1. Computer business graphics packages have the capability to display graphs on the monitor.

T F 2. Formatting is arranging information in an acceptable form.

T F 3. Titles, legends, and labels identify the parts of a graph.

T F 4. To merge is to combine files.

T F 5. All computer business graphics packages have the capability to insert decimals and dollar signs automatically.

Activity Sheet Key

D 5.2

Designing and Producing Complex Graphs

The purpose of this activity is to determine whether or not you have understood the information presented on designing and producing complex graphs.

Each the statements is either TRUE or FALSE. Circle T if the statement is true; circle F if the statement is false.

TRUE 1. Computer business graphics packages have the capability to display graphs on the monitor.

TRUE 2. Formatting is arranging information in an acceptable form.

TRUE 3. Titles, legends, and labels identify the parts of a graph.

TRUE 4. To merge is to combine files.

FALSE 5. All computer business graphics packages have the capability to insert decimals and dollar signs automatically.

ACTIVITY SHEET

D 5.3

Designing and Producing a Complex Line Graph

The purpose of this activity is to determine whether or not you have understood how to design and produce complex line graphs.

Refer to your computer business graphics software package provided by the instructor to produce complex line, bar, and pie graphs. Include the following features:

1. COMPLEX LINE GRAPH

   a. After loading the system, access the menu for the command to enter data.

   b. Enter data.

   c. Select the appropriate graph (line, bar, or pie) creation.

EXAMPLE 1

PEKAR COMPANY SALES 1984

X-AXIS	Y-AXIS	Y-AXIS
	SALES	SALES
AREA	QTR. 1 (1984)	QTR. 2 (1984)
A	150,000	212,000
B	290,000	275,000
C	400,000	413,200
D	375,000	410,150
E	401,000	401,500

   d. Name the graph (if applicable).

   e. Enter data from Example 1 for the X-axis.

   f. Enter data from Example 1 for the Y-axis.

   g. Enter additional data in appropriate columns.

   h. Edit for accuracy.

   i. Edit data for correct axis entry.

   j. Save data.

ACTIVITY SHEET D 5.3 (continued)

k. Display data on the monitor in graph format if this function is available on your equipment.

l. Print a copy of the graph using output device provided by instructor.

m. Retrieve data saved in Example 1.

EXAMPLE 2 (LINE GRAPH)

PEKAR COMPANY SALES 1984

SALES AREA	SALES QTR. 1 (1984)	TOTAL QTR. 2 (1984)	SALES
A	150,000	212,000	(362,000)
B	290,000	275,000	(565,000)
C	400,000	413,200	(813,200)
D	375,000	410,150	(785,150)
E	401,000	401,500	(802,500)
TOTALS	(1,616,000)	(1,711,850)	(3,327,850)

n. Using the calculating function of your computer business graphics software package, calculate vertical and horizontal totals. (Refer to your computer business graphics software package manual to check the availability of the calculating function.)

o. Save data.

p. Enter data from Example 3; print the graph.

EXAMPLE 3 (LINE GRAPH)

PEKAR COMPANY SALES 1985

AREA	SALES QTR. 1 (1985)	SALES QTR. 2 (1985)	TOTAL SALES
A	200,000	190,000	(390,000)
B	250,000	240,000	(490,000)
C	400,000	410,200	(810,200)
D	402,000	420,150	(822,150)
E	350,000	400,500	(750,500)
TOTALS	(1,602,000)	(1,660,850)	(3,262,850)

ACTIVITY SHEET D 5.3 (continued)

EXAMPLE 4 (LINE GRAPH)

PEKAR COMPANY SALES 1984 - 1985

X-AXIS AREA	Y-AXIS SALES QTR. 1	Y-AXIS SALES QTR. 2	Y-AXIS TOTAL SALES
A	350,000	402,000	(752,000)
B	540,000	515,000	(1,055,000)
C	800,000	823,400	(1,623,400)
D	777,000	830,300	(1,607,300)
E	751,000	802,000	(1,553,000)
TOTALS	(3,218,000)	(3,372,700)	(6,590,700)

q. Access the menu of the computer business graphics software package.

r. Select the merge command to construct a graph from Examples 2 and 3 to summarize total sales (Example 4). Refer to your computer business graphics software package manual for specific instructions.

s. Save data.

t. Print a copy of the complex line graph.

ACTIVITY SHEET

D 5.4

Designing and Producing a Complex Bar Graph

The purpose of this activity is to determine whether or not you understood the information on designing and producing complex bar graphs.

2. COMPLEX BAR GRAPH

   a. After loading system, access the menu for the command to enter data on graph.

   b. Select the appropriate bar graph creation.

EXAMPLE 1 (BAR GRAPH)

PEKAR COMPANY SALES 1984

X-AXIS AREA	Y-AXIS SALES QTR. 1 (1984)	Y-AXIS SALES QTR. 2 (1984)
A	150,000	212,000
B	290,000	275,000
C	400,000	413,200
D	375,000	410,150
E	401,000	401,500

   c. Name the graph.

   d. Enter data from Example 1 for the X-axis.

   e. Enter data from Example 1 for the Y-axis.

   f. Enter additional data in the appropriate columns.

   g. Edit data for accuracy.

   h. Edit data for correct axis entry.

   i. Save data.

   j. Display data on monitor in graph format if this function is available on your equipment.

   k. Print a copy of the graph using the output device installed on your system.

ACTIVITY SHEET D 5.4 (continued)

l. Retrieve data saved in Example 1.

EXAMPLE 2 (BAR GRAPH)

PEKAR COMPANY SALES 1984

X-AXIS AREA	Y-AXIS SALES QTR. 1 (1984)	Y-AXIS SALES QTR. 2 (1984)	Y-AXIS TOTAL SALES
A	150,000	212,000	(362,000)
B	290,000	275,000	(565,000)
C	400,000	413,200	(813,200)
D	375,000	410,150	(785,150)
E	401,000	401,500	(802,500)
TOTALS	(1,616,000)	(1,711,850)	(3,327,850)

m. Using the calculating function of your computer business graphics software package, calculate vertical and horizontal totals (refer to your computer business graphics software package manual again if needed).

n. Save data.

EXAMPLE 3 (BAR GRAPH)

PEKAR COMPANY SALES 1985

X-AXIS AREA	Y-AXIS SALES QTR. 1 (1984)	Y-AXIS SALES QTR. 2 (1984)	Y-AXIS TOTAL SALES
A	200,000	190,000	(390,000)
B	250,000	240,000	(490,000)
C	400,000	410,200	(810,200)
D	402,000	420,150	(822,150)
E	350,000	400,500	(750,500)
TOTALS	(1,602,000)	(1,660,850)	(3,262,850)

o. Use data from Example 3 to construct a graph according to the instructions in steps a-n.

ACTIVITY SHEET D 5.4 (continued)

EXAMPLE 4 (BAR GRAPH)

PEKAR COMPANY SALES 1984 - 1985

X-AXIS AREA	Y-AXIS SALES QTR. 1	Y-AXIS SALES QTR. 2	Y-AXIS TOTAL SALES
A	350,000	402,000	(752,000)
B	540,000	515,000	(1,055,000)
C	800,000	823,400	(1,623,400)
D	777,000	830,300	(1,607,300)
E	751,000	802,000	(1,553,000)
TOTALS	(3,218,000)	(3,372,700)	(6,590,700)

p. Access the menu of the computer business graphics software package.

q. Select the merge command to construct a graph from Examples 2 and 3 to summarize sales (Example 4). Refer to your computer business graphics software package manual for specific instructions.

r. Save data.

s. Print a copy of the complex bar graph.

ACTIVITY SHEET

D 5.5

Designing and Producing a Complex Pie Graph

The purpose of this activity is to determine whether or not you have understood how to design and produce a complex pie graph.

3. COMPLEX PIE GRAPH

   a. After loading the system, access the menu for the command to enter data on graph.

   b. Select the appropriate pie graph creation.

EXAMPLE 1 (PIE GRAPH)

PEKAR COMPANY SALES 1984

AREA	SALES QTR. 1 (1984)	SALES QTR. 2 (1984)
A	150,000	212,000
B	290,000	275,000
C	400,000	413,200
D	375,000	410,150
E	401,000	401,500

   c. Name the first graph.

   d. Enter data from Example 1 using the Quarter 1 data for the first pie graph.

   e. Enter data from Example 1 using the Quarter 2 data for the second pie graph.

   f. Enter additional data in appropriate columns.

   g. Edit data for accuracy.

   h. Edit data for correct graph entry.

   i. Save graphs.

   j. Display graphs on the monitor in graph format if this function is available on your equipment.

   k. Print a copy of the graphs using the output device available.

ACTIVITY SHEET D 5.5 (continued)

l. Retrieve data saved in Example 1.

EXAMPLE 2 (PIE GRAPH)

PEKAR COMPANY SALES 1984

AREA	SALES QTR. 1 (1984)	SALES QTR. 2 (1984)	TOTAL SALES
A	150,000	212,000	(362,000)
B	290,000	275,000	(565,000)
C	400,000	413,200	(813,200)
D	375,000	410,150	(785,150)
E	401,000	401,500	(802,500)
TOTALS	(1,616,000)	(1,711,850)	(3,327,850)

m. Using the calculating function of your computer business graphics software package, calculate vertical and horizontal totals. Refer to your computer business graphics software package manual again if needed.

n. Save data.

EXAMPLE 3 (PIE GRAPH)

PEKAR COMPANY SALES 1985

AREA	SALES QTR. 1 (1985)	SALES QTR. 2 (1985)	TOTAL SALES
A	200,000	190,000	(390,000)
B	250,000	240,000	(490,000)
C	400,000	410,200	(810,200)
D	402,000	420,150	(822,150)
E	350,000	400,500	(750,500)
TOTALS	(1,602,000)	(1,660,850)	(3,262,850)

o. Use data from Examples 3 to construct graphs according to the instructions in steps a-n.

ACTIVITY SHEET D 5.5 (continued)

EXAMPLE 4 (PIE GRAPH)

PEKAR COMPANY SALES 1984 - 1985

AREA	SALES 1ST QTR.	SALES 2ND QTR.	TOTAL SALES
A	350,000	402,000	(752,000)
B	540,000	515,000	(1,055,000)
C	800,000	823,400	(1,623,400)
D	777,000	830,300	(1,607,300)
E	751,000	802,000	(1,553,000)
TOTALS	(3,218,000)	(3,372,700)	(6,590,700)

p. Access the menu of the computer business graphics software package.

q. Select the merge command to construct a graph from Examples 2 and 3 to summarize sales (Example 4). Refer to your computer business graphics software package manual for specific instructions.

r. Save data.

s. Print a copy of the pie graphs.

NOTE: The pie graph is not a good instrument for summarizing. It is best used to show comparisons.

AREA: Computer Business Graphics

LEARNER OUTCOME: Design and Produce Complex Line, Bar, and Pie Graphs

LEARNER OUTCOME: D 5

PERFORMANCE/PRODUCT CHECKLIST

STUDENT ______________________________ PERFORMANCE ATTEMPT 1 2 3 4

EVALUATOR ___________________________ DATE ______________________

EVALUATION SITE ____________

TERMINAL PERFORMANCE OBJECTIVE:

Given a workstation, computer business software, and the necessary information, design and produce complex line, bar, and pie graphs.

DIRECTIONS TO THE STUDENT:

Before attempting this performance for mastery, carefully review this checklist. You will be evaluated on the basis of this checklist. When you feel you are ready for evaluation, contact your instructor. You must score at least 15 out of 15 points, or 100% for mastery. All items marked with an asterisk (*) must be satisfactorily completed.

DIRECTIONS TO THE EVALUATOR:

The student will contact you when ready for evaluation. The student must score at least 15 out of 15 points, or to 100% for mastery. All items marked with an asterisk (*) must be satisfactorily completed.

CHECKLIST

D 5

Design and Produce Complex Line, Bar, and Pie Graphs

Enter the data in Table 1 and Table 2 and design and produce a line, bar and pie graph summarizing the information in Table 3.

TABLE 1

MARVEL, BUTLER, PEKAR, BROWNSTEIN, INC.
PLASTICS DIVISION

STATES	SALES QTR. III	SALES QTR. IV	TOTAL SALES
IL	7,560	7,800	(15,360)
IN	3,740	8,260	(12,000)
IA	9,350	10,720	(20,070)
MI	6,970	8,330	(15,300)
MO	10,250	10,125	(20,375)
TOTALS	(37,870)	(45,235)	(83,105)

TABLE 2

MARVEL, BUTLER, PEKAR, BROWNSTEIN, INC.
LIQUID DIVISION

STATES	SALES QTR. III	SALES QTR. IV	TOTAL SALES
IL	8,060	8,500	(16,560)
IN	7,900	8,340	(16,240)
IA	10,175	9,825	(20,000)
MI	5,900	6,500	(12,400)
MO	11,000	11,050	(22,050)
TOTALS	(43,035)	(44,215)	(87,250)

CHECKLIST D 5 (continued)

SUMMARY OF DATA

MARVEL, BUTLER, PEKAR, BROWNSTEIN, INC.
PLASTICS AND LIQUID DIVISIONS

STATES	SALES QTR. III	SALES QTR. IV	TOTAL SALES
IL	15,620	16,300	(31,920)
IN	11,640	16,600	(28,240)
IA	19,525	20,545	(40,070)
MI	12,870	14,830	(27,700)
MO	21,250	21,175	(42,425)
TOTALS	(80,905)	(89,450)	(170,355)

PRODUCT/PERFORMANCE CHECKLIST

D 5

Design and Produce Complex Line, Bar, and Pie Graphs

CRITICAL ITEMS	ITEMS TO BE OBSERVED OR CHECKED	RATING YES/NO
*1.	Did you load the program?	
*2.	Did you access the menu?	
*3.	Did you select the appropriate graph?	
*4.	Did you enter titles, legends and labels?	
*5.	Did you enter the data correctly?	
*6.	Is the X-axis information entered properly?	
*7.	Is the Y-axis information entered properly?	
*8.	Did you edit data?	
*9.	Did you save data?	
*10.	Did you display data? (If possible)	
*11.	Did you print data?	
*12.	Did you retrieve data?	
*13.	Did you compute totals using the calculating function?	
*14.	Did you merge data?	
*15.	Did you use the machine command to enter automatically dollar signs and decimals? (If possible)	

Total Points 15

Points Needed 15

Score ________

INFORMATION PROCESSING

Area:	Computer Business Graphics
Learner Outcome D 6:	Design and Produce Scatter Graphs
Purpose:	As a worker in the modern office, you will need to design and produce scatter graphs. In this practice you will increase your skill in designing and producing scatter graphs.
Objective:	Given a workstation with computer business graphics software and the necessary information, design and produce scatter graphs. To master this learner outcome, you must score at least 12 out of 15, or 80% on a performance/product checklist.

Estimated Class Time: 3 hrs.

Learner Outcome D 6

Design and Produce Scatter Graphs

LEARNING STEPS

READ: Information Sheet D 6.1, "Design and Produce Scatter Graphs."

COMPLETE: Activity Sheet self-check D 6.2, "Design and Produce Scatter Graphs."

COMPLETE: Performance/Product Checklist D 6, "Design and Produce Scatter Graphs."

RESOURCES

D 6

Cessick, Elizabeth. "Better Business Graphics." Popular Computing. August, 1985, pp. 28, 30, 35.

Cowan, William M. "Business Graphics and New Dimensions to Decision Support." Office Administration and Automation. April, 1985, pp. 32-35, 66.

Daggett, Williard R.; Kamiran S. Badrkhan, and Benedict Kruse. Computer and Information Technology. West Chicago: South-Western Publishing Co., 1985.

IBM Software for IBM Personal Computers. IBM Graphing Assistant. 1984.

Jenkins, Avery. "Graphics Boards." PC Week. August 7, 1984, pp. 50-52, 55-57.

McClain, Larry. "The Guts of Graphics Hardware." Popular Computing. November, 1983, p. 91.

McClain, Larry. "A Guided Tour of Business Graphics." Popular Computing. November, 1983, p. 86-89, 94-95, p. 156.

Mandell, Steven L. Introduction to Computers Using an Apple II. St. Paul: West Publishing Company, 1985.

Merritt, John A. "Graphics MOnitors." PC Week. August 7, 1984, pp. 58-60, 62.

Merritt, John A. "Graphics Printers/Plotters." PC Week. August 7, 1984, pp. 64-66, 69.

"Overview." Software Digest Ratings Newsletter, July 1985, pp. 6-11, 74.

Ruby, Daniel and Chris Shipley. "Grpahics Software." PC Week. August 7, 1984, pp. 41-48.

Shelly, Gary B., and Thomas J. Cashman. Computer Fundamentals for an Information Age. Brea, CA: Annaheim Publishing Company, Inc., 1984.

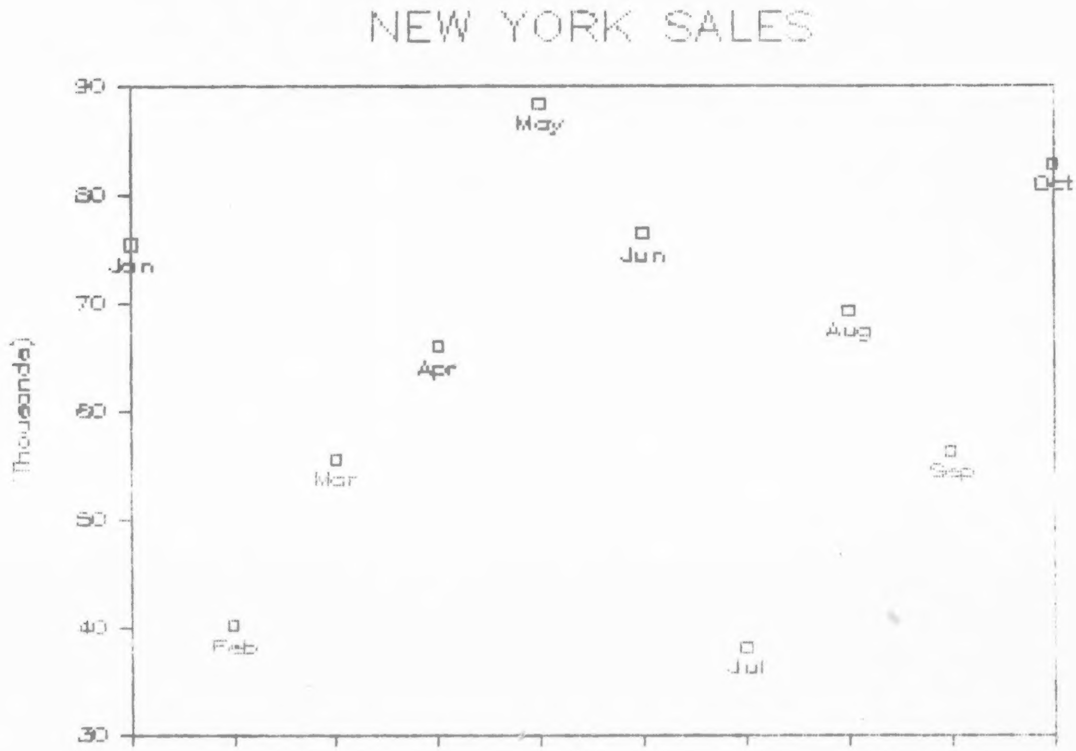
Wolf, Terris B. Microcomputers Applications: Using Small Systems Software. Boston: Boyd & Fraser Publishing Company, 1984.

INFORMATION SHEET

D 6.1

Design and Produce Scatter Graphs

EXAMPLE OF A SCATTER GRAPH BELOW



Use computer business graphics software package provided by your instructor to design and produce a scatter graph from a spreadsheet.

FILE RETRIEVING PROCEDURE

1. Access the main menu.
2. Select the graph file (sub-menu).
3. Select retrieve from the sub-menu.
4. Input the file name and enter.

SETTING COLUMN WIDTH

1. Access the main menu.
2. Select the graph file (sub-menu).
3. Move cursor to range and enter.

4. Set width of columns by using procedures in computer business graphics software manual.

PROTECTING VALUES

1. Select range from main menu.
2. Select protect by keystroking from sub-menu.
3. Select graphs.
4. Select global.
5. Select P for protect or enter if cursor is on protect.
6. Select E for enable (you are now protected).

SETTING LENGTH OF PAGE

1. Access the main menu.
2. Select the graphs menu.
3. Select the page.
4. Type the number of lines desired--usually either 66 or 88 lines.
5. Return to the worksheet by typing a W or the command as indicated by your software package.

ACTIVITY SHEET

D 6.2

Design and Produce Scatter Graphs

The purpose of this activity is to determine whether or not you understood how to design and produce scatter graphs.

Use the computer business graphics software package provided by instructor to design and produce scatter graphs.

GUIDED STEPS

1. Create a scatter graph by retrieving data from a spreadsheet file called COMBINE, using as a guide the computer business software package manual provided by your instructor. Remember to save the document.

    a. Load the program
    b. Access the menu for command to enter data on graphs.
    c. Retrieve the data.
    d. Select the scatter graph creation.
    e. Name the graph.
    f. Enter the title.
    g. Enter the column headings.
    h. Enter the data for X-axis.
    i. Enter the data for Y-axis.
    j. Enter additional data in appropriate columns.
    k. Edit the data columns for accuracy.
    l. Edit the data for correct axis entry.
    m. Save the data.
    n. Display the data on the monitor if this function is available on your equipment.
    o. Make a copy of the graph using output device provided by instructor.

Activity 1: Retrieve the spreadsheet named COMBINE and follow the guided steps above.

```
WEEKLY PRODUCTION ILLINOIS
-------------------------------------------------------------
PRODUCT     GALS/HR OUNCES    CANS # BOTTLES #   %CANS %BOTTLES
-------------------------------------------------------------
PEPSI           400   25600    1600      201       75%      25%
PEPSI-LITE      300   19200     960      240       60%      40%
PEPSI-FREE      375   24000    1599      150       80%      20%
-------------------------------------------------------------
TOTALS         1075   68800    4159      591
=============================================================
```

ACTIVITY SHEET D 6.2 (continued)

Activity 2: Using information from a spreadsheet named SALESR3, follow the same instructions as in Activity 1.

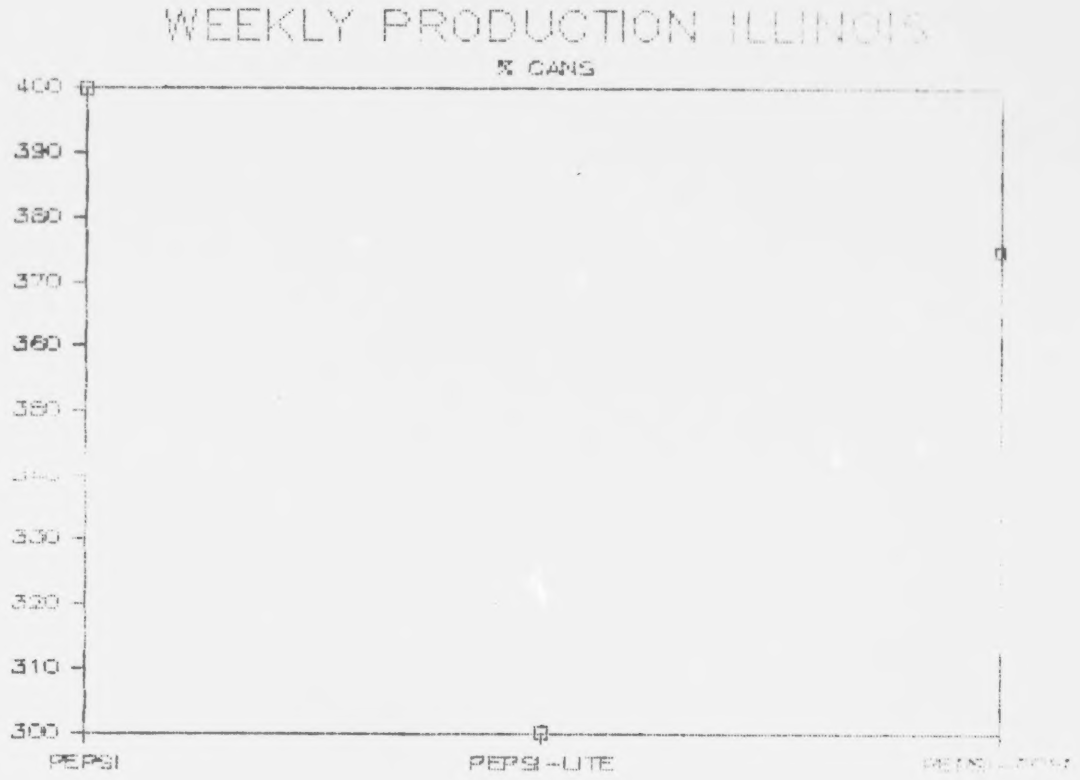
SALES BY MONTH

Profit Center	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
New York	75500	40100	55600	66000	80500	76500	38100	69300	56300	82900	314500	56300	1011600
Chicago	87900	83900	77050	94300	34500	87900	77050	94300	34500	87900	77050	94300	930650
Denver	12660	22590	44100	47900	38100	12660	44100	47900	38100	12660	44100	47900	412770
Los Angeles	33000	19800	32700	38600	25700	33000	32700	38600	25700	33000	32700	38600	384100
Totals	**209060**	**166390**	**209450**	**246800**	**178800**	**210060**	**191950**	**250100**	**154600**	**216460**	**468350**	**237100**	**2739120**

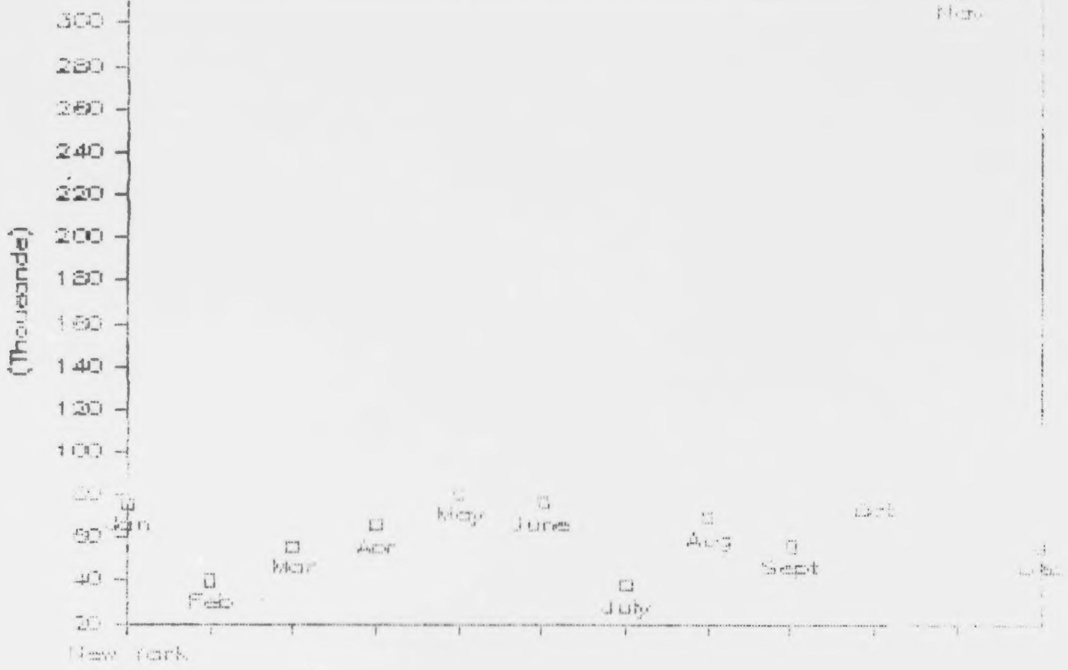
Activity Sheet Key

D 6.2

Design and Produce Scatter Graphs



Activity Sheet Key D 6.2 (continued)



AREA: Computer Business Graphics

LEARNER OUTCOME: Design and Produce Scatter Graphs

LEARNER OUTCOME: D 6

PERFORMANCE/PRODUCT CHECKLIST

STUDENT ______________________________ PERFORMANCE ATTEMPT 1 2 3 4

EVALUATOR ____________________________ DATE ______________________

EVALUATION SITE ____________________

TERMINAL PERFORMANCE OBJECTIVE:

Given a workstation, computer business graphics software, and the necessary information, design and produce scatter graphs.

DIRECTIONS TO THE STUDENT:

Before attempting this component for mastery, carefully review this checklist. You will be evaluated on the basis of this checklist. When you feel you are ready for evaluation, contact your instructor. You must complete your performance within 20 minutes and must score at least 12 out of 15 points, or 80% for mastery. Critical items are marked with an asterisk (*). These items must be satisfactorily completed.

DIRECTIONS TO THE EVALUATOR:

The student will contact you when ready for evaluation. The student must complete the performance within 20 minutes and must score at least 12 out of 15 points, or 80% for mastery. All items marked with an asterisk (*) must be satisfactorily completed.

PERFORMANCE ACTIVITY

D 6

Design and Produce Scatter Graphs

Checklist

The following problem must be designed and produced as a scatter graph. Use the file named REREV2.

Sales By Month

	January	February	March	April
Revenue:				
Sales	$21,000.00	$24,500.00	$22,250.00	$25,460.00
Less: Returns	$500.00	$860.00	$900.00	$840.00
Net Sales	$20,500.00	$23,640.00	$21,350.00	$24,620.00
Expenses:				
Advertising	$900.00	$1,250.00	$1,300.00	$1,200.80
Entertainment	$575.00	$400.00	$750.00	$700.70
Salary	$4,750.00	$5,600.00	$6,200.00	$6,290.30
Utilities	$3,400.00	$3,400.00	$3,400.00	$3,973.20
Miscellaneous	$675.00	$870.00	$750.00	$750.00
Total	$10,300.00	$11,520.00	$12,400.00	$12,915.00
Net Income	$10,200.00	$12,120.00	$8,950.00	$11,705.00

PERFORMANCE/PRODUCT CHECKLIST

D 6

Design and Produce Scatter Graphs

CRITICAL ITEMS	ITEMS TO BE OBSERVED OR CHECKED	RATING YES/NO
* 1.	Did you load the program?	___ ___
* 2.	Did you access the menu?	___ ___
* 3.	Did you read information sheet D 6.1?	___ ___
* 4.	Did you retrieve the data?	___ ___
* 5.	Is the Y-axis information entered properly?	___ ___
* 6.	Is the X-axis information entered properly?	___ ___
* 7.	Did you edit?	___ ___
* 8.	Did you save?	___ ___
* 9.	Did you print?	___ ___
*10.	Did you enter the title?	___ ___
11.	Did you enter the legends?	___ ___
12.	Did you enter the totals through machine calculations?	___ ___
13.	Did you merge the data?	___ ___
*14.	Did you enter the column headings?	___ ___
*15.	Did you use the machine commands to automatically calculate dollar signs and decimals?	___ ___

TOTAL POINTS 15

POINTS NECESSARY 12

SCORE ______

INFORMATION PROCESSING

Area: Computer Business Graphics

Learner Outcome D 7: Design and Produce Area Graphs

Purpose: As a worker in the modern office, you may need to design and produce area graphs. In this information, you will increase your skill in designing and producing area graphs.

Objective: Given a workstation with computer business graphics software and the necessary information, design and produce area graphs. To master this learner outcome, you must score at least 12 out of 15 points, or 80% on a performance checklist.

Estimated Class Time: 3 hrs.

Learner Outcome D 7

Design and Produce Area Graphs

LEARNING STEPS

READ:	Information Sheet D 7.1, "Design and Produce Area Graphs."
COMPLETE:	Activity Sheet Self-Check D 7.2, "Design and Produce Area Graphs."
COMPLETE:	Performance/Product Checklist D 7, "Design and Produce Area Graphs."

RESOURCES

D 7

Cessick, Elizabeth. "Better Business Graphics." *Popular Computing*. August, 1985, pp. 28, 30, 35.

Cowan, William M. "Business Graphics and New Dimensions to Decision Support." *Office Administration and Automation*. April, 1985, pp. 32-35, 66.

Daggett, Williard R.; Kamiran S. Badrkhan, and Benedict Kruse. *Computer and Information Technology*. West Chicago: South-Western Publishing Co., 1985.

IBM Software for IBM Personal Computers. *IBM Graphing Assistant*. 1984.

Jenkins, Avery. "Graphics Boards." *PC Week*. August 7, 1984, pp. 50-52, 55-57.

McClain, Larry. "The Guts of Graphics Hardware." *Popular Computing*. November, 1983, p. 91.

McClain, Larry. "A Guided Tour of Business Graphics." *Popular Computing*. November, 1983, p. 86-89, 94-95, p. 156.

Mandell, Steven L. *Introduction to Computers Using an Apple II*. St. Paul: West Publishing Company, 1985.

Merritt, John A. "Graphics Monitors." *PC Week*. August 7, 1984, pp. 58-60, 62.

Merritt, John A. "Graphics Printers/Plotters." *PC Week*. August 7, 1984, pp. 64-66, 69.

"Overview." *Software Digest Ratings Newsletter*, July 1985, pp. 6-11, 74.

Ruby, Daniel and Chris Shipley. "Grpahics Software." *PC Week*. August 7, 1984, pp. 41-48.

Shelly, Gary B., and Thomas J. Cashman. *Computer Fundamentals for an Information Age*. Brea, CA: Annaheim Publishing Company, Inc., 1984.

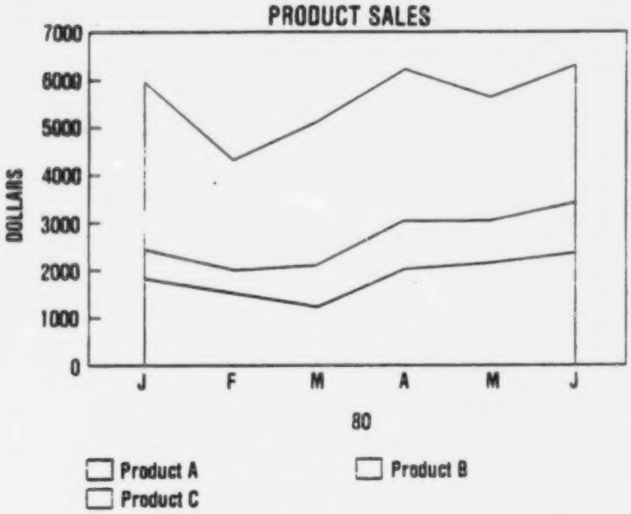
Wolf, Terris B. *Microcomputers Applications: Using Small Systems Software*. Boston: Boyd & Fraser Publishing Company, 1984.

INFORMATION SHEET

D 7.1

Design and Produce Area Graphs

EXAMPLE OF AN AREA GRAPH BELOW



Use a computer business graphics software package provided by your instructor to design and produce an area graph from a spreadsheet.

FILE RETRIEVING PROCEDURE

1. Access the main menu.
2. Select the graph file (sub-menu).
3. Select retrieve from the sub-menu.
4. Input the file name and enter.
5. A copy of the file should appear on the monitor.

SETTING COLUMN WIDTH

1. Access the main menu.
2. Select the graph file (sub-menu).
3. Move the cursor to range and enter.
4. Set the width of columns by using the procedure listed in the computer business graphics software manual.

INFORMATION SHEET D 7.1 (continued)

PROTECTING VALUES

1. Select the range from main menu.
2. Select protect by keystroking from sub-menu.
3. Select graphs.
4. Select global or some word meaning (everything).
5. Select P for protect or enter if cursor is on protect.
6. Select E for enable (you are now protected).

SETTING LENGTH OF PAGE

1. Access the main menu.
2. Select the graphs menu.
3. Select the page.
4. Type the number of lines desired--usually either 66 or 88 lines.
5. Return to the worksheet by typing a W or the command as indicated by your software package.

ACTIVITY SHEET

D 7.2

Design and Produce Area Graphs

The purpose of this activity is to determine whether or not you have understood the designing and producing of area graphs.

Use a computer business graphics software package provided by instructor to design and produce area graphs.

GUIDED STEPS

1. Create an area graph by retrieving data from a spreadsheet file called COMBINE, using as a guide the computer business software package manual provided by your instructor. Remember to save the document.

    a. Load the program.
    b. Access the menu for the command to enter data on the graphs.
    c. Retrieve the data.
    d. Select area graph creation.
    e. Name the graph.
    f. Enter the title.
    g. Enter the column headings.
    h. Enter the data for X-axis.
    i. Enter data for Y-axis.
    j. Enter the additional data in appropriate columns.
    k. Edit the data columns for accuracy.
    l. Edit the data for correct axis entry.
    m. Save the data.
    n. Display data on the monitor if this function is available on your equipment.
    o. Make a copy of graph using the output device provided by instructor.

Activity 1: Retrieve the spreadsheet named COMBINE and follow the guided steps above.

```
 WEEKLY PRODUCTION ILLINOIS
-------------------------------------------------------------
PRODUCT      GALS/HR OUNCES    CANS # BOTTLES #   %CANS %BOTTLES
-------------------------------------------------------------
PEPSI            400   25600    1600      201       75%     25%
PEPSI-LITE       300   19200     960      240       60%     40%
PEPSI-FREE       375   24000    1599      150       80%     20%
-------------------------------------------------------------
TOTALS          1075   68800    4159      591
=============================================================
```

ACTIVITY SHEET D 7.2 (continued)

Activity 2: Using the information from a spreadsheet named SALESR3, use the same instructions as in Activity 1.

	SALES		BY		MONTH								
Profit Center	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
New York	75500	40100	55600	66000	80500	76500	38100	69300	56300	82900	314500	56300	1011600
Chicago	87900	83900	77050	94300	34500	87900	77050	94300	34500	87900	77050	94300	930650
Denver	12660	22590	44100	47900	38100	12660	44100	47900	38100	12660	44100	47900	412770
Los Angeles	33000	19800	32700	38600	25700	33000	32700	38600	25700	33000	32700	38600	384100
Totals	209060	166390	209450	246800	178800	210060	191950	250100	154600	216460	468350	237100	2739120

AREA: Computer Business Graphics

LEARNER OUTCOME: Design and Produce Area Graphs

LEARNER OUTCOME: D 7

PERFORMANCE/PRODUCT CHECKLIST

STUDENT ______________________________ PERFORMANCE ATTEMPT 1 2 3 4

EVALUATOR ____________________________ DATE ______________________

EVALUATION SITE ___________

TERMINAL PERFORMANCE OBJECTIVE:

Given a workstation, computer business graphics software, and the necessary information, design and produce area graphs.

DIRECTIONS TO THE STUDENT:

Before attempting this process for mastery, carefully review this checklist. You will be evaluated on the basis of this checklist. When you feel you are ready for evaluation, contact your instructor. You must complete your performance within 20 minutes and must score at least 12 out of 15 points, or 80% for mastery. Critical items are marked with an asterisk (*). These items must be satisfactorily completed.

DIRECTIONS TO THE EVALUATOR:

The student will contact you when ready for evaluation. The student must complete the performance within 20 minutes and must score at least 12 out of 15 points, or 80% for mastery. All items marked with an asterisk (*) must be satisfactorily completed.

PERFORMANCE ACTIVITY

D 7

Design and Produce Area Graphs

Checklist

The following problem must be designed and produced as an area graph. Use the file named REREV2.

Sales By Month

	January	February	March	April
Revenue:				
Sales	$21,000.00	$24,500.00	$22,250.00	$25,460.00
Less: Returns	$500.00	$860.00	$900.00	$840.00
Net Sales	$20,500.00	$23,640.00	$21,350.00	$24,620.00
Expenses:				
Advertising	$900.00	$1,250.00	$1,300.00	$1,200.80
Entertainment	$575.00	$400.00	$750.00	$700.70
Salary	$4,750.00	$5,600.00	$6,200.00	$6,290.30
Utilities	$3,400.00	$3,400.00	$3,400.00	$3,973.20
Miscellaneous	$675.00	$870.00	$750.00	$750.00
Total	$10,300.00	$11,520.00	$12,400.00	$12,915.00
Net Income	$10,200.00	$12,120.00	$8,950.00	$11,705.00

PERFORMANCE/PRODUCT CHECKLIST

D 7

Design and Produce Area Graphs

CRITICAL ITEMS	ITEMS TO BE CHECKED OR OBSERVED	RATING YES/NO
*1.	Did you load the program?	___ ___
*2.	Did you access the menu?	___ ___
*3.	Did you read information sheet D 7.1?	___ ___
*4.	Did you retrieve data?	___ ___
*5.	Is the Y-axis information entered properly?	___ ___
*6.	Is the X-axis information entered properly?	___ ___
*7.	Did you edit?	___ ___
*8.	Did you save?	___ ___
*9.	Did you print?	___ ___
*10.	Did you enter the title?	___ ___
11.	Did you enter the legends?	___ ___
12.	Did you enter the totals through machine calculations?	___ ___
13.	Did you merge the data?	___ ___
*14.	Did you enter the column headings?	___ ___
15.	Did you use machine commands to automatically calculate dollar signs and decimals?	___ ___

TOTAL POINTS NEEDED 12

POINTS POSSIBLE 15

SCORE ______

INFORMATION PROCESSING

Area: Computer Business Graphics

Learner Outcome D 8: Evaluate Computer Business Graphics Software Packages

Purpose: As a worker in the modern office, you will need to learn the criteria for evaluating and selecting computer business graphics software packages.

Objective: Given access to all necessary resources, you will evaluate computer business graphics software packages. You must score at least 6 out of 7, or 86% on a written exam.

Estimated Class Time: 3 1/2 hrs.

Learner Outcome D 8

Evaluate Computer Business Graphics Software Packages

LEARNING STEPS

READ:	Information Sheet D 8.1, "Evaluate Computer Business Graphics Software Packages."
READ:	Information Sheet D 8.2, "Criteria for Selecting an Appropriate Computer Business Graphics Software Package."
COMPLETE:	Activity Sheet D 8.3, "Evaluate Computer Business Graphics Software Packages."
READ:	Information Sheet D 8.4, "Samples of Computer Business Graphics Software Packages."
READ:	Information Sheet D 8.5, "Description of Business Operation Needing Computer Business Graphics Software."
READ:	Activity Sheet D 8.6, "Evaluating and Selecting Computer Business Graphics Software Packages."
READ & COMPLETE:	Performance/Product Checklist D 8, "Evaluate Computer Business Graphics Software Packages."
COMPLETE:	Written Exam D 8, "Evaluate Computer Business Graphics Software Packages." Contact your instructor.

RESOURCES

D 8

Cessick, Elizabeth. "Better Business Graphics." Popular Computing. August, 1985, pp. 28, 30, 35.

Cowan, William M. "Business Graphics and New Dimensions to Decision Support." Office Administration and Automation. April, 1985, pp. 32-35, 66.

Daggett, Williard R.; Kamiran S. Badrkhan, and Benedict Kruse. Computer and Information Technology. West Chicago: South-Western Publishing Co., 1985.

IBM Software for IBM Personal Computers. IBM Graphing Assistant. 1984.

Jenkins, Avery. "Graphics Boards." PC Week. August 7, 1984, pp. 50-52, 55-57.

McClain, Larry. "The Guts of Graphics Hardware." Popular Computing. November, 1983, p. 91.

McClain, Larry. "A Guided Tour of Business Graphics." Popular Computing. November, 1983, p. 86-89, 94-95, p. 156.

Mandell, Steven L. Introduction to Computers Using an Apple II. St. Paul: West Publishing Company, 1985.

Merritt, John A. "Graphics MOnitors." PC Week. August 7, 1984, pp. 58-60, 62.

Merritt, John A. "Graphics Printers/Plotters." PC Week. August 7, 1984, pp. 64-66, 69.

"Overview." Software Digest Ratings Newsletter, July 1985, pp. 6-11, 74.

Ruby, Daniel and Chris Shipley. "Grpahics Software." PC Week. August 7, 1984, pp. 41-48.

Shelly, Gary B., and Thomas J. Cashman. Computer Fundamentals for an Information Age. Brea, CA: Annaheim Publishing Company, Inc., 1984.

Wolf, Terris B. Microcomputers Applications: Using Small Systems Software. Boston: Boyd & Fraser Publishing Company, 1984.

INFORMATION SHEET

D 8.1

Evaluate Computer Business Graphics Software Packages

1. Options for Creating Computer Business Graphics

   a. SELF-DESIGNED PROGRAM

      1. Graphics--A self-designed program is tailored to meet an individual user's particular need. Designing and creating a personalized package is time consuming and requires the expertise of a serious programmer.

   b. GRAPHICS PACKAGE

      1. These programs have the greatest graphics capacity, are the most flexible, and are the easiest to use. These packages do graphics only. The information or data must be entered by hand or come from another source. This package is generally user friendly.

   c. MULTIFUNCTION OR INTEGRATED PACKAGE

      1. These programs are capable of reading data from spreadsheets and data bases; this eliminates the need to enter data manually.

   Once you enter data in both the graphics and multifunction programs, the computer does the work for you, which includes selecting the proper scale (scaling determines the low and high values for the Y-axis). You may change this selection if you make modifications in your program.

INFORMATION SHEET

D 8.2

Criteria for Selecting an Appropriate Computer Business Graphics Software Package

A list of criteria that may be used to select computer business graphics software packages:

1. Has graphic applications to fit current and future needs.
2. Has graphic applications that are easy to learn (user friendly).
3. Has graphic applications that are easy to use.
4. Has graphic applications that allow for ease in making corrections.
5. Has graphic applications formatted to be compatible with hardware.
6. Has graphic applications with a consistently high level of performance.
7. Has graphic applications priced within your budget.

ACTIVITY SHEET

D 8.3

Evaluate Computer Business Graphics Software Packages

The purpose of this activity is to determine whether or not you have understood the information presented on evaluating computer business graphics software packages.

Each the statements is either TRUE or FALSE. Circle T if the statement is true; circle F if the answer is false.

T F 1. The business graphics package is the graphics option that is easiest to use.

T F 2. The multifunction or integrated package has the capacity to use existing data to create a graph.

T F 3. The need to re-enter data is greatest in the multifunction graphics package.

T F 4. It is possible to design or write a program to create your own graphics program.

T F 5. Scaling determines the low and high value for the Y-axis.

T F 6. The computer does the work for you in a graphics package.

T F 7. The computer does the work for you in a multifunction package.

T F 8. The self-designed program requires the expertise of a serious programmer.

T F 9. The self-designed program is tailored to "fit" one's business needs.

Activity Sheet Key

D 8.3

Evaluate Computer Business Graphics Software Packages

The purpose of this activity is to determine whether or not you have understood the information presented on evaluating computer business graphics software packages.

Each the statements is either TRUE or FALSE. Circle T if the statement is true; circle F if the answer is false.

FALSE 1. The business graphics package is the graphics option that is easiest to use.

TRUE 2. The multifunction or integrated package has the capacity to use existing data to create a graph.

FALSE 3. The need to re-enter data is greatest in the multifunction graphics package.

TRUE 4. It is possible to design or write a program to create your own graphics program.

TRUE 5. Scaling determines the low and high value for the Y-axis.

TRUE 6. The computer does the work for you in a graphics package.

TRUE 7. The computer does the work for you in a multifunction package.

TRUE 8. The self-designed program requires the expertise of a serious programmer.

TRUE 9. The self-designed program is tailored to "fit" one's business needs.

INFORMATION SHEET

D 8.4

Samples of Computer Business Graphics Software Packages

In selecting a computer business graphics software package, there are several considerations including usage, compatibility, performance, memory, and cost. Below are samples of several popular computer business graphics software packages on the market today.

Graphic Software Packages	Model	Memory	Price
** PRINT SHOP	4.0	48K	$ 25.00
*** DOTWRITER	5.0	48K	$ 79.95
* GRAPH	8.00	192K	$ 95.00
* PFS GRAPH	1.0	128K	$ 140.00
* ChartStar	1.0	192K	$ 295.00
* Energraphics	1.8	128K	$ 350.00
* Chart-Master	6.1	192K	$ 375.00
* KeyChart	3.0	128K	$ 375.00
* Super?	Rel 2	98K	$ 395.00
* Graphwriter	4.3	198K	$ 595.00

NOTE: * Compatible with IBM PC, AT&T, Compaq, and others.

** Radio Shack Mod III & IV

*** Apple IIe & IIc, Commodore 84, 126

INFORMATION SHEET

D 8.5

Description of Business Operation Needing Computer Business Graphics Software

School Book Store

Annual gross income of $250,000
Sole Proprietorship
Employees full time--2
Employees part time--1
Free life insurance provided for full-time employees
Free health insurance provided for full-time employees
120 items are handled by this business
75% of sales are cash sales
15% are bank charge sales
10% are lay-away sales
Must pay the following taxes for employees:
- FICA
- State Income Tax
- Federal Income Tax

Must pay state taxes on total sales quarterly
File taxes annually

CHOOSE AN APPROPRIATE COMPUTER BUSINESS GRAPHICS SOFTWARE PACKAGE.

Some considerations:
- inventory control
- tax package
- payroll package
- merge feature to show trends

ACTIVITY SHEET

D 8.6

Evaluating and Selecting Computer Business Graphics Software Packages

The purpose of this activity is to determine whether or not you have understood and can apply the information presented on evaluating and selecting computer business graphics software packages.

You will be evaluated on your ability to apply the criteria given below in selecting an appropriate computer business graphics software package to be used for a designated business operation.

Given the following three options, you will evaluate three computer business graphics software packages and select the best one for the designated business operation.

1. computer business graphics software programs provided by instructor
2. library resources
3. computer centers and available resources

ACTIVITY SHEET D 8.6 (continued)

Name of Package: ____

YES/NO

* Has graphic applications to "fit" current and future needs. ___ ___

Has graphic applications that are easy to learn (user-friendly). ___ ___

Has graphic applications that are easy to use. ___ ___

Has graphic applications that allow for ease in making corrections. ___ ___

* Has graphic applications formatted to be compatible with hardware. ___ ___

Has graphic applications with a consistently high level of performance. ___ ___

Has graphic applications priced within the budget. ___ ___

Activity Sheet Key

D 8.6

Evaluating and Selecting Computer Business Graphics Software Packages

Name of Package: ______________________________

		YES/NO	
*	Has graphic applications to "fit" current and future needs.	X	
	Has graphic applications that are easy to learn (user-friendly).	X	
	Has graphic applications that are easy to use.	X	
	Has graphic applications that allow for ease in making corrections.	X	
*	Has graphic applications formatted to be compatible with hardware.	X	
	Has graphic applications with a consistently high level of performance.	X	
	Has graphic applications priced within the budget.	X	

AREA: Computer Business Graphics

LEARNER OUTCOME: Evaluate Computer Business Graphics Software Packages

LEARNER OUTCOME: D 8

PERFORMANCE/PRODUCT CHECKLIST

STUDENT ______________________________ PERFORMANCE ATTEMPT 1 2 3 4

EVALUATOR ____________________________ DATE ________________________

EVALUATION SITE ___________

TERMINAL PERFORMANCE OBJECTIVE:

Given a written exam, you will answer questions regarding the criteria for selecting an appropriate computer business graphics software package.

DIRECTIONS TO THE STUDENT:

Before attempting this assignment for mastery, carefully review this learner outcome information. When you feel you are ready for evaluation, contact your instructor. You must score at least 6 out of 7 points, or 86%.

DIRECTIONS TO THE EVALUATOR:

The student will contact you when ready for evaluation. The student must score at least 6 out of 7 points, or 86%

WRITTEN EXAM

D 8

Evaluate Computer Business Graphics Software Packages

The purpose of this exam is to determine whether or not you have understood the information presented on using computer business graphics.

Each of the questions or incomplete statements is followed by several words, phrases, or series of numbers. Choose the one that best answers the question or completes the statement correctly. Place the letter associated with that choice (a, b, c, or d) in the numbered blank space. To master this exam, you must answer 6 out of 7 questions correctly, or 86%.

WRITTEN EXAM

D 8

Evaluate Computer Business Graphics Software Packages

1. Which of the following is not an option for creating computer business graphics?

    a. multifunctional or integrated package
    b. self-designed program
    c. source document package
    d. graphics only package

2. The program computer business graphics package that is designed to meet your needs specifically is

    a. multifunctional or integrated package
    b. self-designed program
    c. source document package
    d. graphics only package

3. The most user-friendly package is

    a. multifunctional or integrated package
    b. self-designed program
    c. source document package
    d. graphics only package

4. The package or program best suited for reading and using data from other sources is

    a. multifunctional or integrated package
    b. self-designed program
    c. source document package
    d. graphics only package

5. Select the answer designating the two packages where the computer selects automatically the proper scale for you.

    a. graphics and self-designed
    b. multifunctional and graphics
    c. designed and source document package
    d. graphics and source document package

6. The lowest price for a computer business graphic software package indicated in the information sheet is

    a. $29.95
    b. $79.95
    c. $25.00
    d. $95.00

7. Graphic legends are

   a. tables
   b. labels
   c. fables
   d. plotters

Written Exam Key

D 8

Evaluate Computer Business Graphics Software Packages

1. Which of the following is not an option for creating computer business graphics?

   c. source document package

2. The program computer business graphics package that is designed to meet your own needs specifically is

   b. self-designed program

3. The most user-friendly package is

   d. graphics only package

4. The package or program best suited for reading and using data from other sources is

   a. multifunctional or integrated package

5. Select the answer designating the two packages where the computer selects automatically the proper scale for you.

   b. multifunctional and graphics

6. The lowest price for a computer business graphic software package indicated in the information sheet is

   c. $25.00

7. Graphic legends are

   b. labels

COMPUTER BUSINESS GRAPHICS

D 9

Glossary

AREA GRAPH	usually geographic locations showing points
BAR GRAPH	vertical or horizontal sections of graph showing top of values
BOOT (LOAD)	to start up a computer using a program that is to be loaded into memory
CPU	Central Processing Unit allowing for the processing of data
CREATE	actual preparation of information for graph points
CRT	Cathode Ray Tube. The screen or monitor
CURSOR	a small line or square showing location for data entry
DAISY WHEEL PRINTER	output device that cannot be used for graphs
DATA	a collection of unorganized facts that are not yet processed into information
DATA BASE	an integrated collection of data stored on a direct-scan storage device
DESIGN	the process of planning a data base program
DEFAULT	the assumption made by a computer program when no specific choice is indicated by the user or programmer
DIGITIZER	an input device that normally consists of a flat tablet that the operator traces over with a pen-like stylus or another cursor device. The patterns traced by the operator are automatically entered into the computer system's memory for subsequent processing
DISPLAY	information shown visually on the monitor

GLOSSARY D 9 (continued)

DOCUMENT	a written description of a graphic illustration
DOT MATRIX PRINTER	a low-cost output device allowing for showing positions on a graph
DRUM PLOTTER	an output device that draws on paper and is rolled along a cylindrically shaped drum
EDIT	to correct information previously entered as information for a graph
ELECTRONIC WORKSHEET	a user-friendly software package enabling operators to quickly create tables and financial schedules by entering numbers, values, or formulas into cells or a display screen grid
EXECUTE	actual displaying of graphs on either a monitor or a hard copy device
FILE	a collection of related records
FLATBED-PLOTTER	an output device that draws on paper which is mounted on a flat drafting table
FLAT PANEL	flat monitor used instead of CRT
FORMAT	the presentation of information in a set pattern
FUNCTION KEY	a key that executes a preprogrammed routine when depressed
GRAPHICS	information shown by images on the computer's screen
GRAPHIC DISPLAY TERMINAL	a visual display device containing a keyboard which is designed primarily to display graphic material
GRID LINE	usually runs horizontally across the graph and marks the units of measurement
HARD COPY	printer output of a graph

GLOSSARY D 9 (continued)

HARDWARE	physical equipment in a computing environment, such as the central processing unit and its support devices
HIERARCHICAL	the order of arithmetic operation from high to low--(..), exponent,/,*,+.L to R
INFORMATION	data that have been processed
INPUT	data entry
INTERFACE	connections allowing attachment of other various devices
LABEL	a brief description of values shown in body of graph
LEGEND	description of information about graph on the "X-axis"
LIGHT PEN	an electrical device, resembling an ordinary pen, that can be used to input or display data on a screen
LINE GRAPH	single line showing peaks and valleys of Kilobyte (IK = 1,824 characters)

TELECOMMUNICATIONS

TELECOMMUNICATIONS

PREFACE

In this unit of Information Processing, you will have an opportunity to learn more about telecommunications and its various dimensions.

Telecommunications is the transmission of oral, written, and data communications over long distances. It is the process of transmitting information by electric or electromagnetic systems. The systems include telephone lines, cables, microwave, satellites, and light beams.

Electronic Mail is a high-speed information transportation used to transmit communications either within the in-house systems or between different locations throughout the nation and other countries. This is resulting in some paperless offices.

For telecommunications it is important to have an appropriate telephone system. The system may be divided into three classifications: key systems, private branch exchanges, and central exchanges.

Networking is the newest dimension in communication technology. It is a means of tying computers together. It is the electronic link among a variety of services that enables machines to communicate. Networks are often confined to a building or a local group of buildings; they may also be nationwide as well as worldwide.

The technology for teleconferencing has existed for over one hundred years. Teleconferencing is a meeting of people who are separated geographically. These meetings can use one for three types of conferences: audio, video, or computer.

In this module you will learn how to use the modem. A modem is a peripheral device that permits one computer to communicate with another by telephone. It is a board which fits into a slot inside the computer (internal modem) or one which stands alone (external modem). There must be a modem at each end of the telephone connection and special communications software.

OUTLINE FOR TELECOMMUNICATIONS

E 1 Define and Identify the Major Delivery Methods of Telecommunications

E 2 Electronic Mail Services

E 3 Telephone Systems

E 4 Identify the Reasons for and Choices of Computer Networks

E 5 Use Appropriate Teleconferencing Systems and Services

E 6 Learn What Modems Are, How They Work, and How to Choose One

E 7 Plug in Your Networker Modem and Boot Your Communication Disk

E 8 Learn How to Use the Main Menu and Its Variations

E 9 Learn How to Send and Receive Messages

E 10 Edit and Transmit Files

E 11 Telecommunications Glossary

INFORMATION PROCESSING

Area: Telecommunications

Learner Outcome E 1: Define and Identify the Major Delivery Methods of Telecommunications

Purpose: As a worker in the modern office, you will need to define and identify the major delivery methods of telecommunications.

Objective: Given a written exam, you will be able to define and identify the major delivery methods of telecommunications. To master this learner outcome, you will score 9 out of 10 items correctly, or 90% on a written exam.

Estimated Class Time: 2 hrs.

Learner Outcome E 1

Define and Identify the Major Delivery Methods of Telecommunications

LEARNING STEPS

READ: Information Sheet E 1.1, "Major Delivery Methods of Telecommunications."

COMPLETE: Activity Sheet E 1.2, "Major Delivery Methods of Telecommunications."

COMPLETE: Written Exam E 1, "Major Delivery Methods of Telecommunications." Contact your instructor.

RESOURCES

Blyth, John W. and Mary M. Blyth, Telecommunications: Concepts, Development, and Management, Bobbs-Merrill Educational Publishing Company, a publishing subsidiary of ITT, Indianapolis, 1985.

Minicucci, Rick, "Upper and Lower Case," 'Electronic Mail,' December 1979, p. 125.

Singleton, Loy A., Telecommunications in the Information Age, Ballinger Publishing Company, a subsidiary of Harper & Rowe Publisher, Inc., Cambridge, Massachusetts, 1983.

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INFORMATION SHEET

E 1.1

Major Delivery Methods of Telecommunications

DEFINE TELECOMMUNICATIONS

1. Telecommunications is any transmission, or reception of signs, signals, writings, images, and sounds or information of any nature by wire, radio, visual, or the electromagnetic system.

2. Telecommunications is the transmission of oral communications, written communications, and data communications over long distances.

3. Telecommunications is the process of transmitting information over a distance by electric or electromagnetic systems. Information may take the form of voice, data, image, or message. Electromagnetic transmission systems include telephone lines, cables, microwave, satellites, and light beams.

METHODS OF TRANSMITTING INFORMATION

1. Analog transmission--consists of data in the form of continuous smooth waves that oscillate in proportion to the frequency and intensity of the sound being transmitted. Most voice communication is analog.

2. Digital transmission--consists of data in the form of discrete on-off signals resembling peaks and valleys. Large quantities of data can be sent at high speeds.

3. Fiber optics--is a new method of transmitting information, either digital or analog, in the form of light signals along fine glass threads.

4. Satellite communications (terrestrial station)

   a. often faster
   b. more accurate (10 times as accurate as earth stations)
   c. cost efficient
   d. all-digital communications

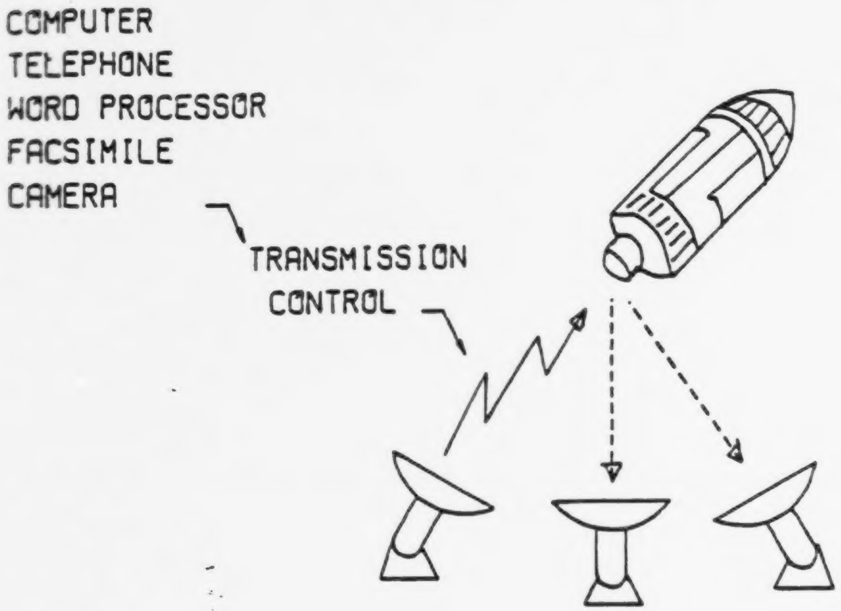


Figure 1. SATELLITE COMMUNICATION STATION

CONVERSION OF DATA

The conversion from analog to digital or from digital to analog is performed by a unit of equipment called a modem, which performs the functions of a modulator and demodulator. The modulator is used in transmission and the demodulator used in reception. The term "data set" is synonymous with the term modem, which is used industry wide. Simply speaking, a modem is any device that permits us to plug our computers into the telephone lines to communicate with other computers and explore on-line data bases. Telephones were invented for transmitting voices, not computer signals over wire. Part of a modem's job is to convert computer signals to sounds the telephone can transmit. This is done digitally through the use of a modem.

DIGITAL VOICE ADVANTAGES

1. Can be merged with data, text, and facsimile using the same equipment.
2. Can easily be encoded and decoded as security is demanded by the processors.

DIGITAL VOICE DISADVANTAGES

1. Less cost efficient than analog.
2. Wide band-width necessary for transmission.
    a. Band-width is a measure of speed at which information can be passed through a circuit (path through which electricity flows). A wide band permits high speed. Small bands degrade voice quality. The copper cable in use today will not accommodate such transmission outside the local environment.
    b. Fiber optics use could overcome the band-width limitation.

FIBER OPTICS/LASER

1. Converts analog signals from telephone or digital signals into light impulses that are transmitted along the glass fibers in a cable.
2. Converts impulses into electrical signals that can be received at destination.
3. More efficient than copper cables--can carry 448 times as many messages as the same diameter copper cable.
4. Improved accuracy of data--immune to electromagnetic and radio interference, thus preventing data loss.
5. Improved security of data--signals are confined to inner core of each strand and do not radiate into atmosphere.

Cost presently is a handicap to fiber optics. Fibers are very expensive to make and install, and lasers are very expensive. This cost is expected to decrease to around $20 in the late 1980's.

EXAMPLES OF COMPANIES PROVIDING SYSTEMS

1. American Satellite Company (ASC)
2. Satellite Business System (SBS)
3. Comstar System, jointly owned by AT&T and GTE, used mainly for telephone message services
4. RCA American
5. Western Union

INFORMATION SHEET E 1.1 (continued)

FOUR TYPES OF TRANSMISSION SYSTEMS

1. Voice Communication--Spoken words transmitted over telephone networks in the form of electrical energy that varies in amplitude with the sound variations being transmitted. Examples: Local & Long distance, Foreign Exchange (FX), Coin Phones, Land Mobile, Paging, Air/Ground, Marine Radio, Business Office, Community Service, Telephone Directories, Directory Assistance, Intercept, Custom Calling, and Controlling Telephone Usage Services.

2. Data Communication--Devices organized to transmit data from one location to another, usually from one computer terminal to another (reduces time spent in collecting and distributing data). Examples: Digital to Analog and Signal Conversion and Digital Data System.

3. Message Systems or Electronic Mail--These systems transmit messages rather than conversation (faster than post office). Examples: U.S. Postal Services or Messenger Delivery, Western Union Telegram, Mailgrams, EasyLink INSTANT MAIL, MCI Mail, and Federal Express, Zap/Mail, Telex and TWX, Computer Word Processors, etc.

4. Image or Facsimile Systems--These systems send exact messages--pictures, sketches, diagrams, and graphs--in data form. Examples: Picturephones, Commercial Television, Cable Television, Satellite Television, Freeze-frame Television, Conference-Circuit Television (Video-Conferencing).

This is the information age. With the increased use of the computer in business, there is a greater need to communicate quickly and for data to be stored and easily retrieved by its users. Because of modern technological advances and the divestiture of the original AT&T Company in 1983, many changes in telecommunications have occurred.

"The convergence of communications and computers is natural since both deal with information. Computers store and manipulate the information while communication's systems transmit the information from one point to another." (Blyth)

In order to cut costs and provide the increased services needed and available in this technological information age, the selection of an appropriate telecommunications system is a major task.

INFORMATION SHEET E 1.1 (continued)

Communications hardware cannot operate alone--software is required. The primary function of the software is to allow "asynchronous communication" to occur. (Asynchronous communication is the basic method of computer-to-computer information exchange; one character is transmitted at a time.) Used individually these instructions are referred to as "communications parameters;" together, these parameters are called "communications protocol software settings."

For two computers to communicate, they must both use the same protocol. The brand name of your computer does not matter as long as the parameter settings are the same.

The marriage of computers to communications has produced a number of offsprings, including teleconferencing, telemarketing, telecommuting, telecourse, telejournal, telemedicine, and teleflora.

ACTIVITY SHEET

E 1.2

Major Delivery Methods of Telecommunications

The purpose of this activity is to determine whether or not you have understood the information on "Delivery Methods."

Each of the statements is either true or false. Please indicate by circling your response.

T F 1. Telecommunications is the transmission of oral communications, written communication, and data communications over long distances.

T F 2. Analog is used in voice communication.

T F 3. Large quantities of data can be transmitted by analog transmission.

T F 4. Satellite communication uses optics and all-digital communications.

T F 5. The conversion of data from analog to digital and from digital to analog is performed by a modem.

T F 6. The use of fiber optics is currently very expensive.

T F 7. Band-width is a measure of speed at which information can be passed through a circuit.

T F 8. Copper cables are more efficient than fiber optics.

T F 9. There are four basic types of transmission systems. They are: (a) data communications, (b) voice communications, (c) message systems or electronic mail, (d) image or facsimile.

T F 10. Asynchronous communication is the basic method of computer-to-modem information exchange; one character is transmitted at a time.

Activity Sheet Key

E 1.2

Major Delivery Methods of Telecommunications

TRUE 1. Telecommunications is the transmission of oral communications, written communication, and data communications over long distances.

TRUE 2. Analog is used in voice communication.

FALSE 3. Large quantities of data can be transmitted by analog transmission.

TRUE 4. Satellite communication uses optics and all-digital communications.

TRUE 5. The conversion of data from analog to digital and from digital to analog is performed by a modem.

TRUE 6. The use of fiber optics is currently very expensive.

TRUE 7. Band-width is a measure of speed at which information can be passed through a circuit.

FALSE 8. Copper cables are more efficient than fiber optics.

TRUE 9. There are four basic types of transmission systems. They are: (a) data communications, (b) voice communications, (c) message systems or electronic mail, (d) image or facsimile.

FALSE 10. Asynchronous communication is the basic method of computer-to-modem information exchange; one character is transmitted at a time.

WRITTEN EXAM

E 1

Major Delivery Methods of Telecommunications

The purpose of this activity is to determine whether or not you have understood the information on delivery methods.

Each of the incomplete statements is followed by several words, phrases, or series of numbers. Choose the one that best answers the question or completes the statement correctly. Place the letter associated with that choice (A, B, C, or D) in the numbered blank space on your ANSWER SHEET. PLEASE DO NOT WRITE ON THIS TEST SHEET! To master the exam, you must answer 9 out of 10 questions correctly, or 90%.

WRITTEN EXAM

E 1

Major Delivery Methods of Telecommunications

1. Telecommunications may be defined as the process of transmitting information over a distance by

   A. pauses and beeps
   B. electrical or electromagnetic systems
   C. manual typewriters
   D. static lines

2. All of the following are examples of telecommunications transmitting systems except one:

   A. telephone lines
   B. cables
   C. fiber optics
   D. hot fire

3. The most accurate and cost-efficient telecommunications transmitting method is

   A. satellite
   B. fiber optics
   C. digital
   D. analog

4. Most voice communication is presently

   A. digital
   B. analog
   C. light beams
   D. satellite

5. The method of transmission that allows large quantities of data to be transmitted at high speeds is

   A. light beams
   B. digital
   C. analog
   D. cables

6. The conversion of data from analog to digital or from digital to analog is performed by a unit of equipment called a

   A. modulator
   B. modem
   C. demodulator
   D. receptor

7. Digital voice transmission has several advantages; please circle the disadvantage.

   A. easily merged with text and facsimile
   B. voice easily encoded and decoded
   C. security protection
   D. wide band-width needed

8. The term "data set" means the same as

   A. fixed data
   B. demodulator
   C. modulator
   D. modem

9. With all of the advantages of fiber optics, there is one big disadvantage; it is

   A. carries fewer messages
   B. electromagnetic interference
   C. cost inefficient
   D. poor security of data

10. For two computers to communicate, they must both use the same

    A. computer
    B. memory load
    C. brand name
    D. communications protocol

Written Exam Key

E 1

Major Delivery Methods of Telecommunications

1. Telecommunications may be defined as the process of transmitting information over a distance by

   B. Electrical or electromagnetic systems

2. All of the following are examples of telecommunications transmitting systems except one

   D. Hot fire

3. The most accurate and cost-efficient telecommunications transmitting method is

   A. Satellite

4. Most voice communication is presently

   B. Analog

5. The method of transmission that allows large quantities of data to be transmitted at high speeds is

   B. Digital

6. The conversion of data from analog to digital or from digital to analog is performed by a unit of equipment called a

   B. Modem

7. Digital voice transmission has several advantages; please circle the disadvantage.

   D. Wide band-width needed

8. The term "data set" means the same as

   D. Modem

9. With all of the advantages of fiber optics, there is one big disadvantage; it is

   C. Cost inefficient

WRITTEN EXAM KEY E 1 (continued)

10. For two computers to communicate, they must both use the same

    D. Communications protocol

INFORMATION PROCESSING

Area: Telecommunications

Learner Outcome E 2: Electronic Mail Services

Purpose: As a worker in the modern office, you will need to learn the criteria for transmitting and selecting electronic mail services and software packages.

Objective: Given access to all necessary resources, you will utilize electronic mail software systems. You will answer at least 18 out of 20 correctly, or 90% on a written exam and answer 7 out of 8 correctly, or 88% on a Performance/Product Checklist.

Estimated Class Time: 4 hrs.

Learner Outcome E 2

Electronic Mail Services

LEARNING STEPS

READ: Information Sheet E 2.1, "Electronic Mail Services."

READ: Information Sheet E 2.2, "Options for Creating Electronic Mail."

COMPLETE: Activity Sheet E 2.3, "Options for Creating Electronic Mail."

READ: Information Sheet E 2.4 on "Electronic Mail Services."

READ & COMPLETE: Activity Sheet E 2.5 on "Electronic Mail Services."

COMPLETE: Performance/Product Checklist E 2, "Electronic Mail Services." See your instructor.

COMPLETE: Written Exam E 2 on "Electronic Mail Services." See your instructor.

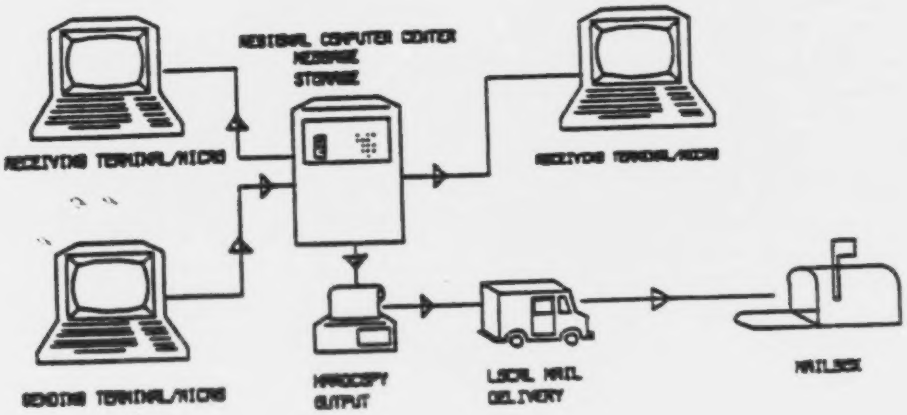
INFORMATION SHEET

E 2.1

Electronic Mail Services

DEFINITION:

Electronic mail is high-speed information transportation used to transmit communications either within the in-house systems or between the different locations throughout the nation. Nonverbal or message communications are essentially written communications that are transmitted over telephone lines.


REGIONAL COMPUTER CENTER
MESSAGE
STORAGE
RECEIVING TERMINAL/MICRO
RECEIVING TERMINAL/MICRO
SENDING TERMINAL/MICRO
HARDCOPY
OUTPUT
LOCAL MAIL
DELIVERY
MAILBOX

INFORMATION SHEET

E 2.2

Options for Creating Electronic Mail

1. Selecting proper communication software.

   Consult with your instructor for selecting the proper communication software for electronic mail. Study the manual for procedures to use electronic mail. Make certain that your equipment is appropriate for using different communication software.

2. Adapting proper connections to access electronic mail services.

   Before using the software package, it is necessary to check your connections in order to use the electronic mail software. Check to see that the computer, disk drives, printer, modem, and telephone are "on-line" and ready to use.

3. Logging-on for transmitting documents.

   Consult your instructor for proper logging-on procedures including password. Before logging-on, you must have your source document ready for transmittal so as not to cause delays in transmitting the electronic mail document.

ACTIVITY SHEET

E 2.3

Options for Creating Electronic Mail

The purpose of this activity is to determine whether or not you have understood the information on electronic mail services.

Each of the statements is either TRUE or FALSE. Please indicate by circling your response.

T F 1. Word processing is another name for electronic mail.

T F 2. It is important to know how to get started for all electronic mail applications.

T F 3. Since a password is "secret," it is not necessary to know a password in order to activate your system for electronic mail.

T F 4. All microcomputers have pre-built-in capabilities for sending electronic mail.

T F 5. Non-verbal messages cannot be sent over the telephone since computers only deal with "digits."

T F 6. "In-house" means that even though the computer system is only one workstation, it can be used for electronic mail.

Activity Sheet Key

E 2.3

Options for Creating Electronic Mail

FALSE 1. Word processing is another name for electronic mail.

TRUE 2. It is important to know how to get started for all electronic mail applications.

FALSE 3. Since a password is "secret," it is not necessary to know a password in order to activate your system for electronic mail.

FALSE 4. All microcomputers have pre-built-in capabilities for sending electronic mail.

FALSE 5. Non-verbal messages cannot be sent over the telephone since computers only deal with "digits."

TRUE 6. "In-house" means that even though the computer system is only one workstation, it can be used for electronic mail.

INFORMATION SHEET

E 2.4

Electronic Mail Services

Telephones are quite capable of sending electronic mail; transmission times range from about six minutes per page for primitive analog facsimile machines, to a few seconds for a page of text. The main advantages are:

1. Telephones are located everywhere.
2. Large capacity in telephone network for electronic mail traffic.

The main disadvantage of the telephone network is the fact that it and its rate structure were not designed specifically for electronic mail. However, "store-and-forward" technology is currently being developed that will utilize more efficient time periods for electronic mail transmission.

THE USE OF TELEX NETWORKS

Telex's major advantage over other types of electronic mail is that it already exists, since most companies already have it installed. However, print quality offers only a very slow transmission rate.

THE USE OF LEASED NETWORKS

The use of leased lines offers volume users a cost-effective means of electronic mail transmission. Often these services are used for both voice and data communication.

The following networks available are:

1. PACKET-SWITCHED NETWORK: One kind sends the data in packets (a set number of characters). In addition to data, each packet contains the address of the destination terminal; when more data than can fit in one packet must be sent, several are used. Each packet travels throughout the network independently and may follow different routes.

2. MESSAGE-SWITCHED NETWORK: This differs only in that the whole message is sent together and may not be separated into several units.

3. CIRCUIT-SWITCHED NETWORK: Uses "end-to-end" connections in much the same way as the telephone network.

Neither packet-switched nor circuit-switched data networks are very cost effective for electronic mail. Packet-switched networks are generally set up for interactive computer users. Circuit-switched data networks are expensive to set up for the average electronic mail user. Message-switched network systems are the most useful for electronic mail, but they are more expensive to build than packet-switched systems.

THE USE OF HYBRID NETWORKS

These combine electronic transmission with physical transmission. The most common type is the ordinary telegram, where the message is hand-delivered to the addressee from a local terminal. Another service is the Mailgram service operated by Western Union and the Postal Service, where electronically transmitted messages are printed near the destination post office and mailed for next-day delivery.

THE USE OF SIGNAL CONVERSIONS

All of the following systems require a MODEM (MODulator DEModulator). It is a device that permits computers to transmit information over regular telephone lines. Digital electronic signals generated by the computer are converted by the modem into high and low tones. This process is known as modulation. The tones are a type of analog signal. The modem also converts analog signals to digital signals.

BBS (BULLETIN BOARD SYSTEM)

Bulletin Board Systems are widely used to communicate between individual computers. In most cases, the user must become a member of the service (either by paying a fee or requesting to be a part of the service). The following is a list of commercial bulletin board systems that can be used:

1. COMPUSERVE
2. SOURCE
3. DOW JONES NEWS NETWORK
4. OFFICIAL AIRLINE GUIDE

SPECIALIZED ELECTRONIC MAIL SERVICES

EasyLink (Western Union) offers the following types of messages that can be sent:

1. Abbreviated Address: Message addressed to a two-digit number that represents a single address.
2. Cablegram (INT): International telegram transmitted to an overseas address or to an address in Mexico.
3. EasyLink: Message addressed to another EasyLink subscriber.
4. InfoCom (ICS): Message addressed to a seven-character routing code (mnemonic) that represents a station on an InfoCom network. International Telex (ITX) message addressed to an overseas Telex or a Telex in Canada, Mexico, or Alaska.
5. Mailgram (ZIP): Mailgram message destined to an addressee in the United States (including Alaska and Hawaii) and Canada to be delivered by the Postal Service.
6. Telex I: Message destined to a Telex I subscriber in the United States.
7. Telex II (TWX): Message destined to a Telex II subscriber in the United States or a TWX subscriber in Canada.
8. Telegram (PMS): Telegram destined to an addressee in the continental United States and Canada.

SERVICES OFFERED BY AT&T

1. Dataphone-50: a 50K bps service, which will be made obsolete shortly by other services with lower prices.
2. Dataphone Digital Service (DDS): a private line digital service for interstate point-to-point or point-to-multipoint service. Transmission rates up to 1.544 million bps are available.
3. Advanced Communication Service (ACS): a data communications network service, first announced by AT&T in 1978 but delayed by various developmental problems. This service is now operational.

4. Dataphone II System: a new system (1985) of high-performance data communication products . . . modems, multiplexers, digital service units, and diagnostic control devices . . . that combines data transmission with sophisticated network management capabilities.

5. AT&T is now offering a circuit-switched digital capability. This will enable users to transmit and receive digital data and analog voice transmissions over the telephone network.

SERVICES OFFERED BY OTHER CARRIERS

1. Graphnet: The Graphnet system permits any facsimile machine to communicate with any other. It will accommodate input from any digital device and will convert computer output of documents to facsimile representation. Its message services include store-and-forward, multiple addressing, and manual delivery by messenger or by other means to locations now owning their own terminal.

2. ITT's Com-Pak Network: A similar system in some respects to Graphnet. This system offers an even fuller range of conversion services between incompatible terminals in addition to store-and-forward facilities.

3. GTE Telenet: A packet-switched network used mainly for terminal-to-computer use (also has capabilities for terminal-to-terminal usage). Telenet has introduced its Telemail service, enabling users on the network to send messages back and forth, which can be stored in the GTE Telenet computers.

4. Tymnet: A packet-switched network operated by Tymshare. OnTyme II is another service offering direct communication from ASCII terminals to facsimile terminals for hard copy output, and it has an "electronic mailbox" feature.

5. E-COM (U.S. Postal Service): Electronic Computer Originated Mail allows the electronic transmission of bulk messages to certain post offices around the U.S. Once received, the messages are printed out, automatically put into envelopes, and delivered as regular mail.

6. INTELPOST (U.S. Postal Service): International Electronic Post is an international digital facsimile network that transmits messages via satellite and uses existing postal delivery services for mail collection and distribution.

7. MCI MAIL (MCI Digital Information Service Co., a Division of MCI Communications): Most Computer-Based Messaging Systems (CBMS) are data base management systems. With MCI, the "data base" consists of messages, and "management" means coordination of storage and access. People authorized to use the system create messages on their terminals and send them to other network users.

The computer's mail management program delivers the message to the appropriate disk storage slot (mailbox) and also creates a pointer which appears on the recipient's terminal screen, indicating that a message awaits. Recipients can open only their personal mailboxes, using passwords issued when they first join the system. Each time the user signs onto the system with his password, the system notifies him whether messages await.

VOICE MAIL

Voice mail converts the caller's voice to digital signals; the voice mail may be forwarded immediately or stored and delivered at a later date. Wasted time in calling individuals back when they are out of the office will be eliminated. AT&T and 3M have Voice Message Systems available for a fee.

DIGITATION OF THE TELEPHONE NETWORK

A digital telephone channel samples and transmits a voice or other audio signals with a digital representation at a rate of 64,000 bps. Thus, what might take one minute to send over an analog telephone line should take less than five seconds over a digital system.

INTEGRATED OFFICE COMMUNICATION SYSTEMS

Most dedicated word processors do not allow for communication with other units. Some systems can have special additional features installed. However, almost all microcomputers with word processing software have the capability of utilizing electronic mail functions. This has proven to be cost effective for the business community where a volume of electronic mail is a vital part of its operation. They also benefit from the ability to merge information provided by correspondence directly with data processing; for example, in order handling.

SINGLE PURPOSE vs MULTIPURPOSE SYSTEMS

A communicating word processor costs more than a noncommunicating word processor, but it may eliminate the need for other terminals. A higher capacity data-transmission system may cost more than a lower capacity one but may allow the addition of electronic mail.

SECURITY AND PRIVACY ISSUES

Security and privacy problems with electronic mail are probably no more severe than with conventional mail. An exception exists when electronic mail is combined with computer archiving and storage. This means that breaches of security can occur more suddenly and be more severe--simply because of the ease with which large amounts of information can be transferred. However, for very sensitive material, encryption (protective code) can provide for very secure transmission of electronic mail.

ACTIVITY SHEET

E 2.5

Electronic Mail Services

The purpose of this activity is to select and use appropriate systems given specific requirements.

Complete one of the following case studies for electronic mail. Select the appropriate system and explain the reasons for your choice.

CASE STUDY 1. INSURANCE COMPANY

The publications department of a life insurance company uses a word processor to edit the final draft of a new employee handbook. When finished, the typist needs to send a publishing firm the manuscript of the new publication.

CASE STUDY 2. AGRICULTURAL PROCESSING COMPANY

A corporate executive needs to send a memo directly to supervisors at all company locations.

CASE STUDY 3. HIGH SCHOOL

While writing a proposal, a high school wants to do a search of current literature for articles related to its proposal.

ACTIVITY SHEET E 2.5 (continued)

CASE STUDY 4. PROFESSIONAL INDIVIDUAL

A businesswoman in Texas needs to retrieve and analyze daily stock quotes. She must send the results of her calculations to a client in Nevada whose information service is in Virginia.

AREA: Telecommunications

LEARNER OUTCOME: Electronic Mail Services

LEARNER OUTCOME: E 2

PERFORMANCE/PRODUCT CHECKLIST

STUDENT ______________________________ PERFORMANCE ATTEMPT 1 2 3 4

EVALUATOR ____________________________ DATE ______________________

EVALUATION SITE ____________________

TERMINAL PERFORMANCE OBJECTIVE

Given a workstation, communications software, and the necessary information, you will be able to produce electronic mail.

DIRECTIONS TO THE STUDENT

Before attempting this task for mastery, carefully review this checklist. You will be evaluated on the basis of this checklist. When you feel you are ready for evaluation, contact your instructor. You must complete your performance within 1 hour and must score at least 7 out of 8 points, or 88%. Critical items are marked with an asterisk (*). These items must be satisfactorily completed.

DIRECTIONS TO THE EVALUATOR

The student will contact you when ready for evaluation. The student must complete the performance within one hour and must score 7 out of 8 points, or 88%. All items marked with an asterisk (*) must be satisfactorily completed.

PERFORMANCE/PRODUCT CHECKLIST

E 2

Electronic Mail Services

CRITICAL ITEMS	ITEMS TO BE OBSERVED OR CHECKED	RATING YES/NO
*1.	Did you get required information for selecting communication software?	___ ___
*2.	Did you make certain you have proper connections?	___ ___
*3.	Did you log on properly?	___ ___
*4.	Did you receive the proper password?	___ ___
*5.	Did you complete one of the Case Studies?	___ ___
*6.	Did you boot up your system?	___ ___
7.	Did you have permission to use the electronic mail system?	___ ___
*8.	Were you allowed to actually transmit on the system?	___ ___

TOTAL POINTS 8

POINTS NEEDED 7

SCORE ___ ___

WRITTEN EXAM

E 2

Electronic Mail Services

The purpose of this exam is to determine whether or not you have understood the information on electronic mail services.

Each of the incomplete statements is either true or false. Write a T or F on the Answer Sheet. DO NOT WRITE ON THIS TEST! To master this exam, you must answer 18 out of 20 items correctly, or 90%.

WRITTEN EXAM

E 2

Electronic Mail Services

Each of the statements is either TRUE or FALSE. Please indicate by writing your response on a separate sheet.

T F 1. Electronic mail is high-speed transmission of communications using the computer.

T F 2. Facsimile transmissions are not a widely used form of electronic mail.

T F 3. E-COM is the system used by MCI.

T F 4. In the future, home/office link-ups will enable employees to transmit work from home to the office.

T F 5. Electronic mail systems can be programmed to offer special mailing features similar to those offered by the U.S. Post Office.

T F 6. Information processing provides the capability of sending and receiving "mail" over a network, reading the mail on the screen of a terminal, and using the keyboard of the terminal to respond.

T F 7. The use of leased lines offers volume users a cost-effective means of electronic mail transmission.

T F 8. Telex is a new system just being developed for electronic mail.

T F 9. Message-switched and packet-switched are both the same type of data transmission using electronic mail.

T F 10. A telegram is one type of electronic mail.

WRITTEN EXAM E 2 (continued)

T F 11. It is not necessary to use a modulator/demodulator for electronic mail.

T F 12. Bulletin Board systems are available for anyone to use.

T F 13. Voice Mail converts the caller's voice to analog signals.

T F 14. ZIP can be used for international communications.

T F 15. Dataphone II is an electronic mail system developed by AT&T.

T F 16. Graphnet and Com-Pak are similar systems of electronic mail allowing different computers to communicate with each other.

T F 17. GTE Telenet is a message-switched network.

T F 18. AT&T and 3M offer voice mail communications.

T F 19. Password protection is the only way to insure security of electronic mail transmissions--especially sensitive messages.

T F 20. The ordinary telegram is the most common type of a hybrid network.

Written Exam Key

E 2

Electronic Mail Services

TRUE 1. Electronic mail is high-speed transmission of communications using the computer.

FALSE 2. Facsimile transmissions are not a widely used form of electronic mail.

FALSE 3. E-COM is the system used by MCI.

TRUE 4. In the future, home/office link-ups will enable employees to transmit work from home to the office.

TRUE 5. Electronic mail systems can be programmed to offer special mailing features similar to those offered by the U.S. Post Office.

FALSE 6. Information processing provides the capability of sending and receiving "mail" over a network, reading the mail on the screen of a terminal, and using the keyboard of the terminal to respond.

TRUE 7. The use of leased lines offers volume users a cost-effective means of electronic mail transmission.

FALSE 8. Telex is a new system just being developed for electronic mail.

FALSE 9. Message-switched and packet-switched are both the same type of data transmission using electronic mail.

TRUE 10. A telegram is one type of electronic mail.

Written Exam Key E 2 (continued)

FALSE 11. It is not necessary to use a modulator/demodulator for electronic mail.

FALSE 12. Bulletin Board systems are available for anyone to use.

FALSE 13. Voice Mail converts the caller's voice to analog signals.

FALSE 14. ZIP can be used for international communications.

TRUE 15. Dataphone II is an electronic mail system developed by AT&T.

TRUE 16. Graphnet and Com-Pak are similar systems of electronic mail allowing different computers to communicate with each other.

FALSE 17. GTE Telenet is a message-switched network.

TRUE 18. AT&T and 3M offer voice mail communications.

FALSE 19. Password protection is the only way to insure security of electronic mail transmissions -- especially sensitive messages.

TRUE 20. The ordinary telegram is the most common type of a hybrid network.

INFORMATION PROCESSING

Area: Telecommunications

Learner Outcome E 3: Select an Appropriate Telephone System

Purpose: As a worker in the modern office, you should be familiar with the types of telephone systems in use in most offices today.

Objective: Given the needed resources, explore telephone systems. To master this learner outcome, you must answer 9 out of 10 items correctly, or 90% on a written exam.

Estimated Class Time: 3 hrs.

Learner Outcome E 3

Select an Appropriate Telephone System

LEARNING STEPS

READ:	Information Sheet E 3.1, "Telephone Systems."
READ:	One or more of the resources below on telephone systems.
COMPLETE:	Activity Sheet E 3.2, "Telephone Systems."
COMPLETE:	Activity Sheet E 3.3, "Telephone Systems."
COMPLETE:	Written Exam E 3, "Telephone Systems." Contact your instructor.

RESOURCES

Barrett, Juey, Joys of Computer Networking, McGraw-Hill Company, New York, 1984.

Gentle, Dean, The Netweaver's Sourcebook, Addison-Wesley Publishing, Reading, 1984.

Feldman, Frederick R., "Define Objectives & Usage in Telephone-System Review," Office Systems 85, June, 1985, pp. 60-64.

Rosen, Arnold, Eileen Tunison, and Margaret Bahniuk, Administrative Procedures for the Electronic Office, John Wiley & Sons, New York, 1982.

Singleton, Loy A., Telecommunications in the Information Age, Ballinger Publishing Company, Cambridge, 1983.

Smith, Harold, William Baker, Mary Summer, and Almon Bate, Automated Office Systems Management, John Wiley & Sons, New York, 1985.

Tedesco, Eleanor, and Robert Mitchell, Administrative Office Management - The Electronic Office, John Wiley & Sons, New York, 1984.

INFORMATION SHEET

E 3.1

Telephone Systems

Telephone systems may be divided into three classifications--key systems, private branch exchanges, and central exchanges.

TELEPHONE SYSTEMS

1. Key Systems: Key systems have access to lines by pushing a button. Key systems are used in smaller offices that have 50 or fewer telephones. No central switchboard is needed. Stations usually have the following features:

   a. intercom lines
   b. hold button

2. Optional features that may generally be purchased for an additional fee include

   a. intercom conferencing
   b. automatic routing of unanswered calls
   c. music for callers placed on hold
   d. station restrictions that allow only certain phones access to long-distance lines

3. Private Branch Exchange: PBX (Private Branch Exchange) and PABX (Private Automatic Branch Exchange) require a centralized switchboard. Many of the systems used today are controlled by a microprocessor. Some private branch exchange systems can handle up to 10,000 lines. Because the equipment is controlled by a computer, software can be designed to meet the needs of each individual company. The same wiring that is used for the PBX can be used to network computers. The speed to transmit the data is slower than a LAN (Local Area Network). However, the cost per installed workstation to transmit both voice and data on a PBX averages $935; using a LAN the cost per workstation averages $2500.

Features available on private branch exchanges include

a. callback if lines are busy
b. routing of calls over the most economical routes
c. forwarding of calls to another station
d. reporting of calls made to each phone
e. call waiting
f. call hold

INFORMATION SHEET E 3.1 (continued)

3. Centrex: Centrex systems allow calls to be transferred directly to the station dialed without an on-site switchboard. The telephone company's central exchange is used.

4. WATS: Wide Area Telecommunications allows for a predetermined number of calls for a specified rate. WATS service may be inward (for calls coming in) or outward (for calls going out). Fees are based on distance outward from the company; the distance is measured in "bands."

5. Tie Line Service: Tie line service is used to connect two sites. Unlimited calls may be made between these two locations for a set fee.

6. Foreign Exchange Service: Local numbers are provided for companies which are not located in a city. Individuals calling this number would be charged at the local rather than the long distance rate. For instance, Company X has no offices in Atlanta, Georgia; their corporate headquarters is located in Miami, Florida. They arrange for foreign exchange service. Individuals in Atlanta can call a number in the Atlanta phone directory and be billed at the local rate.

7. Automatic Dialing: Automatic dialing stores telephone numbers and will dial numbers with the touch of a button.

VOICE/DATA STATIONS

Integrated voice/data workstations (IVDWs) combine the technology of the PC and phones. Relatively new on the market, these terminals answer a range of needs. The terminals will display data from a local or on-line data base, load in applications software, and then automatically dial the phone. The targeted market for IVDWs is the customer service worker.

ACTIVITY SHEET

E 3.2

Telephone Systems

The purpose of this activity is to determine whether or not you have understood the information on telephone systems.

Write your answer on a separate sheet.

1. What are the three classifications of telephone systems?

2. List the distinguishing characteristic(s) of each.

3. Describe each of the following telephone services:

   WATS

   Tie Line Service

   Foreign Exchange Service

   Automatic Dialing

Activity Sheet Key

E 3.2

Telephone Systems

The purpose of this activity is to determine whether or not you have understood the information on "Telephone Systems."

Write your answer on a separate sheet.

1. What are the three classifications of telephone systems?

   1. key systems
   2. private branch exchanges
   3. central exchanges

2. List the distinguishing characteristic(s) of each.

   1. key systems--no central switchboard is needed.
   2. private branch exchanges--require a centralized switchboard.
   3. central exchanges--allow transfer of calls directly to the station dialed without an on-site switchboard.

3. Describe each of the following telephone services:

WATS--allows for a predetermined number of calls for a specified rate. May be inward or outward, and fees are based on distance outward from the company.

Tie Line Service--used to connect two sites. Unlimited calls may be made between the two locations for a set fee.

Foreign Exchange Service--Local numbers are provided for companies that are not located in a city, and individuals calling this number are charged the local rate.

Automatic Dialing--stores telephone numbers; will dial numbers with the touch of a button.

ACTIVITY SHEET

E 3.3

Telephone Systems

The purpose of this activity is to determine whether or not you have understood the information on the telephone systems. Write your answer on the blanks provided.

Visit a local business. Obtain information concerning its telephone system.

1. What is the name of the company?

2. What type of telephone system does it have? (Mark correct answer with an X.)

   (1) Key System ___

   (2) PBX or PABX ___

   (3) Centrex ___

3. How many lines does the system handle?

4. Is this system controlled by a microprocessor?

   (1) Yes ___

   (2) No ___

5. Indicate which of the following services are used?

   (1) _____ WATS

   (2) _____ Tie Line Service

   (3) _____ Foreign Exchange Service

   (4) _____ Automatic Dialing

ACTIVITY SHEET E 3.3 (continued)

6. Indicate which of the following features are used at this company.

(1) _____ Automatic Callback

(2) _____ Automatic Forwarding of calls

(3) _____ Call hold

(4) _____ Intercom conferencing

(5) _____ Call waiting

(6) _____ ______________________________

(7) _____ ______________________________

WRITTEN EXAM

E 3

Telephone Systems

The purpose of this exam is to determine whether or not you have understood the information presented on telephone systems.

Choose from the answers given. Write on a separate sheet the letter that represents the correct answer.

To master this exam you must score 9 out of 10 items correctly, or 90%.

WRITTEN EXAM

E 3

Telephone Systems

Choose the letter that comes before the correct answer. Write your response on a separate sheet.

1. Telephone systems may be divided into three classifications. These are

   A. Key Systems, Private Branch Exchanges, and Tie Lines
   B. Key Systems, Private Branch Exchanges, and Centrex
   C. Foreign Exchange, Key Systems, and Private Branch Exchange
   D. none of the above

2. Key systems have access to lines by depressing a

   A. button
   B. key
   C. bar
   D. none of the above

3. Key systems are generally used in

   A. offices with 200 or fewer phones
   B. offices with 50 or fewer phones
   C. offices with 200 or more phones
   D. none of the above

4. Private Branch Exchanges are often

   A. controlled by a microprocessor
   B. designed to meet the needs of each individual company
   C. connected to PC and used to transmit both voice and data
   D. all of the above
   E. none of the above

5. Centrex

   A. requires an on-site switchboard
   B. requires a trained operator
   C. does not require an on-site switchboard
   D. all of the above
   E. none of the above

WRITTEN EXAM E 3 (continued)

6. WATS

    A. allows for a predetermined number of calls at a specified rate
    B. may be inward and outward
    C. rates are based on distance outward from the company
    D. all of the above
    E. none of the above

7. Tie Line Service

    A. is used to connect three or more sites
    B. is used to connect two sites
    C. allows unlimited calls for a set fee
    D. both B and C
    E. both A and C

8. Integrated voice/data workstations

    A. combine the technology of the phone and the typewriter
    B. combine the technology of the phone and the calculator
    C. combine the technology of the phone and the PC
    D. all of the above
    E. both A and C

9. PBXs may be used to

    A. network computers
    B. report calls made to individual phones within a company
    C. route calls over most economical routes
    D. all of the above
    E. both A and C

10. Foreign Exchange Service

    A. provides a local number for companies located in a distant city
    B. provides free service for government officials
    C. provides for lower rates to South American countries
    D. all of the above
    E. both A and B

Written Exam Key

E 3

Telephone Systems

Choose the letter that comes before the correct answer. Write your response on a separate sheet.

1. Telephone systems may be divided into three classifications. These are

   B. Key Systems, Private Branch Exchanges, and Centrex

2. Key systems have access to lines by depressing a

   A. Button

3. Key systems are generally used in

   B. Offices with 50 or fewer phones

4. Private Branch Exchanges are often

   D. All of the above

5. Centrex

   C. Does not require an on-site switchboard

6. WATS

   D. All of the above

7. Tie Line Service

   D. Both B and C

8. Integrated voice/data workstations

   C. Combine the technology of the phone and the PC

9. PBXs may be used to

   D. All of the above

10. Foreign Exchange Service

    A. Provide a local number for companies located in a distant city

INFORMATION PROCESSING

Area: Telecommunications

Learner Outcome E 4: Identify the Reasons for and Choices of Computer Networks

Purpose: As a worker in the modern office, you will be using computer networks at an increasing rate in order to share data and communicate with other computer sets.

Objective: Given a written exam, you will be able to identify the reasons for and existing choices of computer networks. To master this learner outcome, you must score 9 out of 10 points correctly, or 90% on a written exam.

Estimated Class Time: 3 hrs.

Learner Outcome E 4

Identify the Reasons for and Choices of Computer Networks

LEARNING STEPS

READ: Information Sheet, E 4.1, "Telecommunications/Networking."

READ: One or more of the resources on "Telecommunications/Networking."

VIEW: Film on computer networks, if available.

COMPLETE: Activity Sheet, E 4.2, "Telecommunications/Networking."

COMPLETE: Activity Sheet, E 4.3, "Telecommunications/Networking."

COMPLETE: Activity Sheet, E 4.4, "Telecommunications/Networking."

CONTACT: Written Exam for final evaluation, Exam E 4, "Telecommunications/Networking." Contact your instructor.

RESOURCES

E 4

Telecommunications/Networking

Allen, Robert J., "PCS with the Right Connections," Modern Office Technology, July 1985, pp. 60-68.

Barrett, Judy, Joys of Computer Networking, McGraw-Hill Book Company, New York, 1984.

Blackmarr, Brian R., "Networking: Surveying the Lay of the LAN," Modern Office Technology, July 1984, pp. 65-76.

Garner, Patricia A., "Telecommunications: A Vital Part of the Information Age," The Secretary, March 1984, pp. 10-14.

Mott, Dennis, and Zane Quible, "Integrating Information Processing into Business Communications," Business Education Forum, Yearbook Issue, 1985, pp. 44-47.

Rosen, Arnold, Eileen Tunison, and Margaret Bahniuk, Administrative Procedures for the Electronic Office, John Wiley & Sons, New York, 1982.

Rubin, Charles, "Finally . . . Computer Networks That Really Work," Personal Computing, July 1985, pp. 68-78.

Smith, Harold, William Baker, Mary Sumner, and Almon Bate, Automated Office Systems Management, John Wiley & Sons, New York, 1985.

Tedesco, Eleanor, and Robert Mitchell, Administrative Office Management--The Electronic Office, John Wiley & Sons, New York, 1984.

INFORMATION SHEET

E 4.1

Telecommunications/Networking

WHAT IS NETWORKING?

Networking is a means of tying computers together.

It is the electronic link among a variety of devices that enable machines to communicate. Thus, the information product of one office or station can be directly accessed by another office or station without reentering the original data.

A network can interconnect hundreds of different devices--from terminals and personal computers to printers/copiers, communications systems, plotters, and photocomposers--with a high-speed communications link.

Networks are often confined to a building or a local group of buildings; they can expand via gateways to wide-area networks that allow communication with other networks or data sources in another part of town or across the country.

Gateway: a "door" in an electronic network that allows a connection to be made with another compatible network.

Local area network components

1. microcomputer
2. network interface card for the computer
3. cable wiring
4. a file or print server
5. user application programs
6. network software that operates the system.

All networks are not alike:

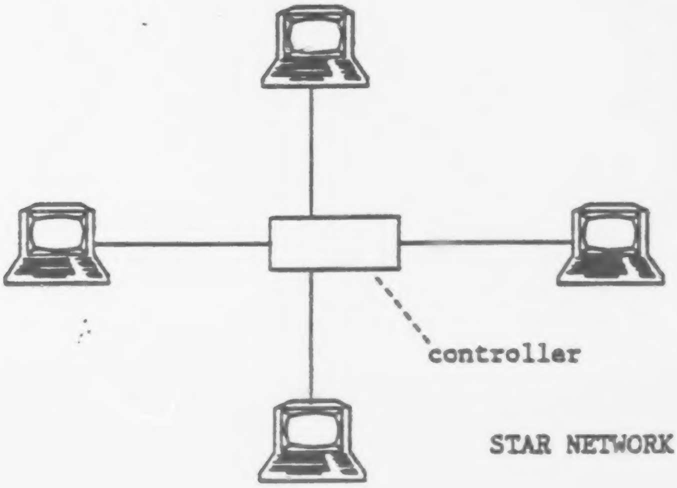
1. Some networks permit two personal computers to communicate; others permit scores of personal computers to communicate with each other, as well as with mainframes or minicomputers.

2. The method of wiring will vary: coaxial cable, twisted-pair cable, or fiber optics. Devices attached to local area networks are usually wired to one another with coaxial cables, while long-distance networks use either telephone lines or satellites. A coaxial cable can be installed throughout the office building just like electric wiring containing outlets where machines can be plugged in and can carry electronic signals from

one machine to another, allowing them to communicate without human intervention.

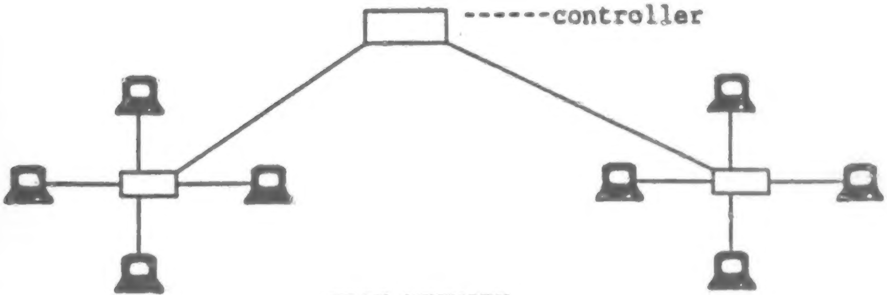
3. The configuration can vary. A star topology clusters personal computers in a star shape around a central network server. A ring network connects components in a single closed loop. A tree or bus network is a single bi-directional communication link.

(See illustrations.)

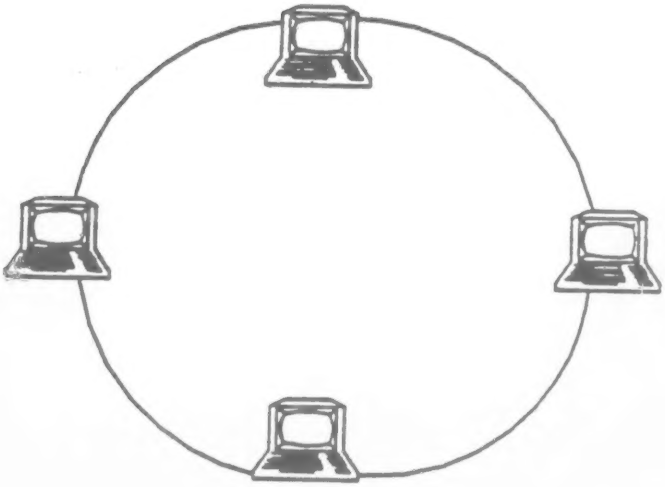


STAR NETWORK

INFORMATION SHEET E 4.1 (continued)


------controller

TREE NETWORK



RING NETWORK

TYPES OF NETWORKS

1. The intrafacility network is the transmission network for connecting the offices and buildings of a company. It could be simple intercom paths or it may be a network for the integrated electronic office, often called a LAN (Local Area Network).

2. The local network connects the intra-office network to the telephone company's central office or local exchange. A very large company with several buildings located in different areas may interconnect with several telephone companies.

3. Long-haul networks grow to be very complicated. They include every circuit or alternative path the user may have for long-distance voice communications (WATS, tie lines, etc.) as well as the paths dedicated to data, video, or facsimile communications. Some nationwide firms establish their own private networks by leasing lines from carriers for their exclusive use. Some even build their own transmission facilities, including microwave relay stations and satellites, and interconnect with a variety of carriers.

4. International networks include all four forms of communications, which may interconnect with the networks of international carriers.

WHY ARE NETWORKS USED?

Business relies heavily on communication to get its work done. People have to communicate with each other within a company; they have to communicate with prospective and actual customers. Even though more businesses are relying on computers to do their bookkeeping and financial planning, most still use reams of paper for communication: paper for memos between offices, paper for letters to customers, paper for marketing campaigns, paper to keep track of missed phone calls.

The office network can readily replace much of today's paper volumes with electronic documents.

To be effective, office-based information systems should be interconnected. They should have the ability to communicate rapidly and efficiently and share scarce or expensive system elements.

INFORMATION SHEET E 4.1 (continued)

Local area networks (LANs) are designed to

1. provide simple connection to all types and brands of office machines.
2. reduce communication costs (such as telephone and U. S. Postal Service).
3. optimize office automation investments.
4. provide an easy-to-use, economical, and efficient communications service (electronic mail).
5. provide the option of changing the location of a piece of equipment without necessarily disrupting the communication system.

Most organizations are NOT single vendor environments. The ability to supply a common and workable connection in a multi-vendor environment is a strong asset often provided by a local area network.

Examples of situations where data can be shared:

1. The sales manager wants all employees to have access to a customer data base.
2. The accounting manager may want all the books on one hard disk from which several clerks can retrieve and update them.
3. A group of marketing executives may want to share projections, marketing plans, and other project information among themselves.

The primary application of networks in business communications is the transmittal of messages, letters, reports, and data from one location to another. One individual can communicate electronically with one or more persons. This method can eliminate the use of hard copy; when the message reaches its destination, hard copy can easily be prepared if the recipient wishes.

When an organization decides to include electronic networking, it generally must acquire a local area network (LAN), and the choices are complicated. A LAN directly connects all the computers and terminals in the network usually by some sort of cable, radio transmitter, or fiber-optics device. In addition, each computer within the system must be compatible with the others in order for a LAN to work with existing machines.

INFORMATION SHEET E 4.1 (continued)

Alternatives: A network is not the only data-sharing method, and it is not necessarily the simplest or most cost effective. You could simply pass floppy disks between compatible computers or use a data transfer utility such as MCI Mail.

INFORMATION SHEET E 4.1 (continued)

ADVANTAGES

The benefits of local area networks, however, are numerous. Because the network is always ready to operate, there is no problem of calling into a foreign system, paying connect charges, or doing something the network does not provide. Electronic messages can fly from one part of the business to another--whether both people are at their desks or not; and since the connections are direct, there is no need to handle modems or phones.

Jan can leave a message on Marge's computer for Marge to pick up whenever it is convenient. Dave can call into the network from out of town to pick up messages he might otherwise have missed while he was away. Marge and Dave can have an impromptu meeting on their computers and make quick decisions without having to leave their offices.

Any private network that connects people/computers within a limited area could be considered a local area network. A lot of time, energy, and wasted steps can be saved by having the ability to contact someone--whether they are there or not.

LOOKING TO THE FUTURE

Office workers will be able to plug in to any computer within their network and gain access to any data stored by any of the computers in the network. It will be possible for office workers to have access to data stored anywhere in this country and perhaps anywhere in the world. You will be able to work at home and use a microcomputer to gain access into the network and retrieve any needed information.

The terminal will not only provide access into computers, but it will also contain sophisticated text-editing equipment for processing messages electronically. Words and graphs will take only seconds to be sent from one location to another on the same terminal that is used for all other communication processes. Separate pieces of equipment for each function will not be needed; all functions will be performed on a single terminal.

THE HUMAN ASPECT

Networking is the newest dimension in communication technology. It opens up avenues never before explored. With such expanded access to information, the businessperson of the future must develop keen skills of analysis, organization, and verbalization to sort through the resources being made available by new technology.

For a network to be effective, the flow of work and communication needs of the knowledge workers must be carefully studied and thoroughly understood (knowledge workers: people who work with information). It is much easier to install machine interconnections than it is to understand communication interconnections required by people.

CONSTANT EVALUATION

A network requires constant planning, evaluation, and attention. Usage and maintenance of pieces of equipment must be coordinated among carriers. Network controls must ensure that all circuits are transmitting properly, both for incoming and outgoing traffic, and that all circuits are properly utilized and not sitting idle. Diagnostic systems of modern switching equipment provide visibility so that managers can see where problems occur in the system and either provide maintenance or contact the responsible vendor or carrier. Costs must be fairly allocated to users within the firm according to good accounting practices. Controls must be in place to ensure against misuse and abuse.

People are constantly requesting new communication services, and organizational changes are constantly creating new demands on the system. Above all, the communication needs of the managers and knowledge workers must be recognized and satisfied throughout the ongoing process of communications management.

ACTIVITY SHEET

E 4.2

Telecommunications/Networking

The purpose of this activity is to determine whether or not you have understood the information on telecommunications/networking.

Write on a separate sheet your answer to complete the statement. Use the Information Sheet E 4.1 as a reference.

1. Networking is the ______________________ among a variety of devices that enable computers to communicate.
2. Local area networks are often confined to a ___________.
3. Some networks permit many personal computers to communicate with each other, as well as with ________________ or minicomputers.
4. Network configurations include the star network, the _____ network, and the ____________ network.
5. The office network can easily replace much of today's volumes of paper with electronic ________________.
6. Office-based information systems should have the ability to share ____ ______________________________.
7. Local area networks are designed to provide the option of changing the __________ of a piece of equipment without necessarily disrupting the communication system.
8. Local area networks often provide the ability to supply a ___________________connection in a multi-__________ environment.
9. The _______________ network is the transmission network for connecting the offices and buildings of a company.
10. ____________________ networks include all ___ forms of communications.
11. The accounting manager may want all the books on one hard disk from which several clerks can _____ and _____ them.
12. A network isn't the only ________________ method, and it isn't necessarily the ___________ or most cost-effective.

ACTIVITY SHEET E 4.2 (continued)

13. You could simply pass floppy disks between ______________ computers.

14. With a LAN, there is _____ problem of calling into a foreign system.

15. A lot of ______, ______, and ____________________________ can be saved by having the ability to contact someone--whether there or not.

16. List three changes/trends to be brought by networks in the future.

    ____

    ____

    ____

17. List four examples of business situations where networks can be helpful.

    ____

    ____

    ____

    ____

18. With the possible expanded access to information, the businessperson of the future must be able to ______________ ______________________ the resources being made available by new technology.

19. The businessperson of the future must develop keen skills of __________________, ____________________, ____________________.

20. List four things a manager should watch for after the network is installed and operating.

    ____

    ____

    ____

    ____

Activity Sheet Key

E 4.2

Telecommunications/Networking

The purpose of this activity is to determine whether or not you have understood the information on "Telecommunications/Networking."

Write on a separate sheet your answer to complete the statement. Use the Information Sheet E 4.1 as a reference.

1. Networking is the ___ electronic link ___ among a variety of devices that enable computers to communicate.

2. Local area networks are often confined to a ___ building ___.

3. Some networks permit many personal computers to communicate with each other, as well as with ___ mainframes ___ or minicomputers.

4. Network configurations include the star network, the ___ tree ___ network, and the ___ ring ___ network. **or bus**

5. The office network can easily replace much of today's volumes of paper with electronic ___ documents ___.

6. Office-based information systems should have the ability to share ___ scarce or expensive system elements ___.

7. Local area networks are designed to provide the option of changing the ___ location ___ of a piece of equipment without necessarily disrupting the communication system.

8. Local area networks often provide the ability to supply a ___ common ___ connection in a multi- ___ vendor ___ environment. **or workable**

9. The ___ intrafacility ___ network is the transmission network for connecting the offices and buildings of a company.

10. ___ International ___ networks include all ___ four ___ forms of communications.

11. The accounting manager may want all the books on one hard disk from which several clerks can retrieve and update them.

12. A network isn't the only ___ data-sharing ___ method, and it isn't necessarily the ___ simplest ___ or most cost effective.

Activity Sheet Key E 4.2 (continued)

13. You could simply pass floppy disks between compatible computers.

14. With a LAN, there is no problem of calling into a foreign system.

15. A lot of time, energy, and wasted steps can be saved by having the ability to contact someone--whether there or not.

16. List three changes/trends to be brought by networks in the future.

answers will vary

17. List four examples of business situations where networks can be helpful.

answers will vary

____

____

____

18. With the possible expanded access to information, the businessperson of the future must be able to sort through the resources being made available by new technology.

19. The businessperson of the future must develop keen skills of analysis, organization, verbalization.

20. List four things a manager should watch for after the network is installed and operating.

answers will vary

____

____

____

ACTIVITY SHEET

E 4.3

Telecommunications/Networking

The purpose of this activity is to determine whether or not you have understood the information on telecommunications/networking.

Match the following terms with the list of definitions (write on a separate sheet the appropriate letter).

1. network 1. _____
2. gateway 2. _____
3. LAN 3. _____
4. network component 4. _____
5. coaxial cable 5. _____
6. star network 6. _____
7. long-haul network 7. _____
8. communication cost 8. _____
9. intrafacility network 9. _____
10. interconnected 10. _____

a. door

b. network software that operates the system

c. computers clustered around a central network server

d. U. S. Postal Service

e. effective information systems

f. electronic link

g. local area network

h. intercom paths

i. can include WATS lines

j. method of wiring

Activity Sheet Key

E 4.3

Telecommunications/Networking

The purpose of this activity is to determine whether or not you have understood the information on telecommunications/networking.

Match the following terms with the list of definitions (write on a separate sheet the appropriate letter):

1.	network	1.	f
2.	gateway	2.	a
3.	LAN	3.	g
4.	network component	4.	b
5.	coaxial cable	5.	j
6.	star network	6.	c
7.	long-haul network	7.	i
8.	communication cost	8.	d
9.	intrafacility network	9.	h
10.	interconnected	10.	e

a. door

b. network software that operates the system

c. computers clustered around a central network server

d. U. S. Postal Service

e. effective information systems

f. electronic link

g. local area network

h. intercom paths

i. can include WATS lines

j. method of wiring

ACTIVITY SHEET

E 4.4

Telecommunications/Networking

The purpose of this activity is to determine whether or not you have understood the information on telecommunications/networking.

Instructor will choose from the following assignments

1. Interview information/word processing managers and prepare a summary report. The interview can focus on the changes that have taken place in the past five years. Ask your instructor to approve the interview questions prior to the interview. Submit your written report to your instructor.

2. You would like to purchase an expensive, high-quality printer for your office. How could networking help you justify the expense and get the most use from that printer? Submit your written answer to your instructor.

3. Each time the department secretary purchases some supplies at the bookstore, she tries to remember to record the items purchased and the price of each item in our department's records. She also needs to deduct the total amount of the purchase from our department's annual supplies budget. How could a network help in this situation?

4. List, in detail, several situations where a network could improve the flow of work in your community.

5. List the organizations in your community that use networks.

Activity Sheet Key

E 4.4

Telecommunications/Networking

The purpose of this activity is to determine whether or not you have understood the information on telecommunications/networking.

Instructor will choose from the following assignments.

1. Interview information/word processing managers and prepare a summary report. The interview can focus on the changes that have taken place in the past five years. Ask your instructor to approve the interview questions prior to the interview. Submit your written report to your instructor.

   (Students will become better aware that change is a normal process in the world of work.)

2. You would like to purchase an expensive, high-quality printer for your office. How could networking help you justify the expense and get the most use from that printer? Submit your written answer to your instructor.

   (Several workstations could be attached to the printer; software that allowed for several applications, such as word processing, data-base management, spreadsheets, and graphics, could be used so that the same printer is used for several applications.)

3. Each time the department secretary purchases some supplies at the bookstore, she tries to remember to record the items purchased and the price of each item in our department's records. She also needs to deduct the total amount of the purchase from our department's annual supplies budget. How could a network help in this situation?

   (The bookstore computer could be networked to the department office's computer. The bookstore clerk could key in the items purchased, each price, and the total for the bookstore records as well as the department's records. The information would be keyboarded once and automatically appear in both records.)

4. List, in detail, several situations where a network could improve the flow of work in your community.

5. List the organizations in your community that use networks.

WRITTEN EXAM

E 4

Telecommunications/Networking

The purpose of this exam is to determine whether or not you have understood the information on identifying the reasons for and choices of computer networks.

Write on a separate sheet a T for True or an F for False for each statement. To master this exam, you must answer 9 out of 10 items correctly, or 90%.

WRITTEN EXAM

E 4

Telecommunications/Networking

Write on a separate sheet a T for True or an F for False for each statement.

T F 1. Local area networks are always confined to one building.

T F 2. A gateway is a door in an electronic network.

T F 3. Local area networks include a microcomputer, a network interface card, and cable wiring.

T F 4. LANs are limited to four computers.

T F 5. A coaxial cable can be installed throughout a building similar to electric wiring.

T F 6. Paper documents are still used as often as electronic documents.

T F 7. An expensive printer can be used to better advantage if it is networked to as many workstations as possible.

T F 8. In order to receive a message from another terminal, the operator must be present to receive it.

T F 9. An alternative to a network could be using a data transfer utility.

T F 10. One advantage of networking is sharing data without rekeying that data.

Written Exam Key

E 4

Telecommunications/Networking

FALSE 1. Local area networks are always confined to one building.

TRUE 2. A gateway is a door in an electronic network.

TRUE 3. Local area networks include a microcomputer, a network interface card, and cable wiring.

FALSE 4. LANs are limited to four computers.

TRUE 5. A coaxial cable can be installed throughout a building similar to electric wiring.

FALSE 6. Paper documents are still used as often as electronic documents.

TRUE 7. An expensive printer can be used to better advantage if it is networked to as many workstations as possible.

FALSE 8. In order to receive a message from another terminal, the operator must be present to receive it.

TRUE 9. An alternative to a network could be using a data transfer utility.

TRUE 10. One advantage of networking is sharing data without rekeying that data.

INFORMATION PROCESSING

Area: Telecommunications

Learner Outcome E 5: Use Appropriate Teleconferencing Systems and Services

Purpose: As a worker in the modern office, you will be using teleconferencing due to new innovations in computer technology. You should be familiar with services available to those who use audioconferencing, videoconferencing, and computer conferencing facilities.

Objective: Given the needed resources, identify the types of services available to those individuals who use teleconferencing services. To master this learner outcome, you must score 13 out of 15 points, or 87%.

Estimated Class Time: 3 hrs.

Learner Outcome E 5

Use Appropriate Teleconferencing Systems and Services

LEARNING STEPS

READ: Information Sheet E 5.1 , "Teleconferencing."

OBSERVE: Teacher demonstration of available teleconferencing equipment.

COMPLETE: Activity Sheet E 5.2, "Teleconferencing." See instructor.

COMPLETE: Activity Sheet E 5.3, "Teleconferencing." See instructor.

COMPLETE: Written Exam E 5 "Teleconferencing." Contact your instructor.

RESOURCES

E 5

Use Appropriate Teleconferencing Systems and Services

Barrett, Judy, *Joys of Computer Networking*, McGraw-Hill Book Company, New York, 1984.

Feldman, Frederick R., "Define Objectives & Usage in Telephone-System Review," *Office Systems 85*, June 1985, pp. 60-64.

Jenkins, Tom, "Take Audio Teleconferencing and Meet Without Traveling," *Office Systems 85*, April 1985, pp. 100-104.

Latino, Jane, "Telecommunications Management with PC Software," *Office Systems 85*, June 1985, pp. 66-70.

Roe, Bonnie, "Teleconferencing: Its Potential in the Modern Office," *Century 21 Reporter*, Spring 1985, pp. 5-7.

Rosen, Arnold, Eileen Tunison, and Margaret Bahniuk, *Administrative Procedures for the Electronic Office*, John Wiley & Sons, New York, 1982.

Ryan, Mary, "Voice Mail the New Medium for Message at Major Firms," *Information Week*, June 10, 1085, pp. 42-43.

Smith, Harold, William Baker, Mary Sumner, and Almon Bate, *Automated Office Systems Management*, John Wiley & Sons, New York, 1985.

Tedesco, Eleanor, and Robert Mitchell, *Administrative Office Management - The Electronic Office*, John Wiley & Sons, New York, 1984.

INFORMATION SHEET

E 5.1

Teleconferencing

Teleconferencing is a meeting of people who are separated geographically. These meetings can use one of three types of conferences: audio teleconferencing, video teleconferencing, or computer teleconferencing. The technology for teleconferencing has been around for over a hundred years. However, new innovations in computer technology have again focused attention on teleconferencing.

Why do executives prefer teleconferencing over more traditional face-to-face meetings?

1. Travel Costs: According to Bell Laboratories, annual expenditures for meetings and conferences cost $290 million; $195 million of that cost is spent getting executives from one place to another.
2. Travel Time: Both physical and mental fatigue result from spending time in airports, hotels, and eating on the run. Productivity is increased by better use of time. Rather than spending time in airports and hotels, the executive can be at work.
3. Competitive Edge: On site teleconferencing facilities allow executives located in different parts of the country to meet and arrive at decisions much more quickly.

AUDIOCONFERENCING

Audioconferencing is available to any office with a telephone. Participants can hear and be heard but cannot be seen.

Executives choose this method over video teleconferencing or computer teleconferencing because of cost. Videoconferencing costs about five times as much as audioconferencing. In most cases the equipment is already in place. When a third site is added to the audio conference, a device called a "bridge" will be needed to connect the conference. With a quick call to the telephone company, one can easily schedule the conference date and time. In this case, the telephone company is providing the bridge.

It may be necessary to obtain special equipment to equalize phone volume and control the quality of the voice. Speakerphones or portable conference phones will enable several individuals at one site to hear and be heard.

Although audio teleconferencing has many of the advantages of video and computer teleconferencing, it does have some distinct disadvantages. Individuals must listen very carefully because there are no visual clues to assist the listener--no pictures or drawings.

VIDEOCONFERENCING

Two methods of videoconferencing are in use today. These include full-motion video and still pictures. The full-motion videoconferencing costs up to ten times more than still pictures. Video teleconferencing might be used when face-to-face meetings are desirable--executive conferences, sales presentations, budget meetings.

Regular telephone lines may be used when transmitting "still pictures." Pictures take from 10 to 30 seconds to be transmitted. A video camera can take group shots or focus on the speaker during the conference. However, it is not possible to move rapidly from speaker to speaker with this type of transmission.

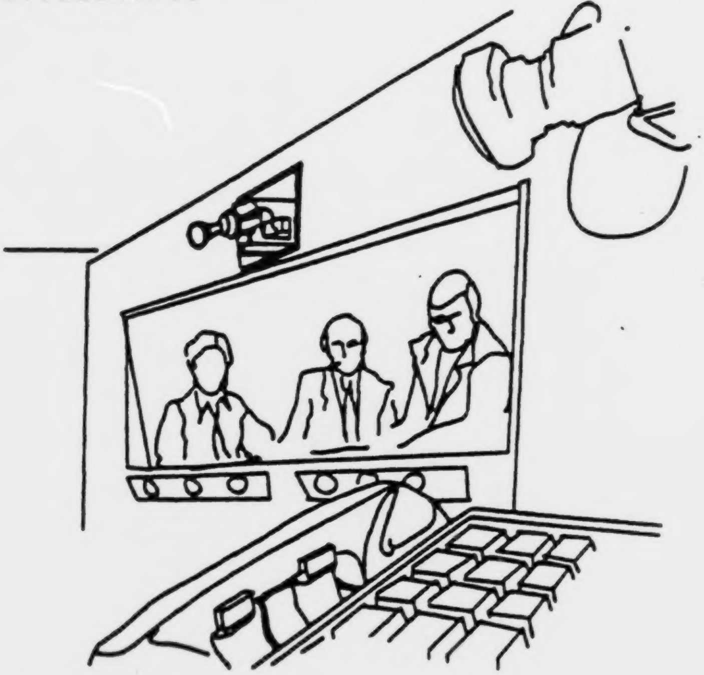
Full-motion videoconferencing should be used when you wish to have interactive discussion with participants in view. Full-motion videoconferencing can be inward only (one way) or two way (both inward and outward).

Inward videoconferencing might be used for a lecture where the audience will not be participating. Company presidents could give presentations to regional directors using this type of videoconferencing.

The cost to build full-motion video teleconferencing facilities is high. Atlantic-Richfield spent $17 million to build a conferencing system that links seven cities. Costs for installing full-motion facilities begin at $200,000. Several hotel chains, including Holiday Inn, Hilton, and Marriott, have installed full-motion video teleconferencing facilities that can be used for a fee. Satellite Business Systems offers video teleconferencing services to private business and government using advanced satellite systems.

Equipment found in video teleconferencing facilities might include video cameras, monitors (or projection systems), and microphones. Specialized equipment used to exchange drawings and/or pictures may be found in videoconferencing facilities. These include AT&T's electronic blackboard (Gemini 100) that is able to transmit images made on a blackboard from one location to another. The facsimile can be used to quickly send a copy of a report, drawing, or x-ray from one location to another.

Special training for participants in video teleconferencing is desirable. Individuals can then learn to be more effective when using these facilities.



COMPUTER CONFERENCING

Computer teleconferencing allows users with the needed computer hardware and software to join in an on-line discussion. Messages are keyboarded and appear on the computer terminal. The number of individuals who may participate is generally unlimited. Private conferences are available through The Source, Delphi, and CompuServe. The computer maintains a record of messages.

Ordinary telephone lines, modems, and RS 232 interface devices are generally needed for computer conferencing. The modem converts digital signals to analog signals for transmission over telephone lines. The rate of transmission is measured in bits per second more commonly known as the BAUD. The baud rates most common are 300 and 1200. For conferencing where you will be reading data on the screen, 300 is more than adequate.

The Source provides an opportunity for new users to enter a practice conference and become proficient in the use of their teleconferencing program, PART I. There is no additional fee for using PART I.

To enter a commercial conferencing service such as The Source or CompuServ, you might follow these general procedures or ones similar to these:

1. Dial local number.
2. Wait for a tone.
3. Activate modem.
4. Enter your User ID.
5. Enter your password.

Most systems will identify themselves and give you the time and date. At the end of the conference, you will want to log off the system immediately. In most cases, you will be charged for connect time. You should plan ahead to make the most efficient use of your time.

All individuals wishing to participate in a computer conference must be members of the same conferencing system. If your company plans to use CompuServ, then all individuals with whom they wish to communicate must also be members.

PROCEDURES FOR EFFICIENT USE OF TELECONFERENCING FACILITIES

Efficient use of teleconferencing facilities is best accomplished if you establish and follow a set of procedures. A sample follows:

1. Schedule teleconferencing meeting with private service or with appropriate individuals in your company.
2. Notify participants of meeting time, date, and place.
3. Identify sequence of speakers; prepare and send agenda.
4. Mail handouts or arrange telecopier service if needed.
5. Arrange for additional visual equipment.
6. Confirm all arrangements.
7. Check facility to make certain all equipment is working properly.

VIDEOTEX

Videotex provides access to informaton (text, graphics, data) through a modified television set. Videotex is another version of The Source, CompuServe, and Dow Jones News, which is available at a fraction of their cost.

INFORMATION SHEET E 5.1 (continued)

Two systems used in Britain since the 1970's are Teletex and Viewdata. Teletex transmits data while Viewdata uses in-place telephone lines to transmit and receive data. Experimental use of Viewtron (videotex system) is underway in Florida.

Videotex may be accessed in the following manner:

1. Select information by keying in codes on a keypad or keyboard.

(2) Request passes through a modem to the central computer.

(3) Information requested is displayed on user's television screen.

Types of information that may be available through Videotex services consists of financial reports, news (weather and industrial), sales catalogs, and video games. Interactive transactions, such as banking, making travel arrangements, and shopping, are available on many systems.

ACTIVITY SHEET

E 5.2

Teleconferencing

The purpose of this activity is to determine whether or not you have understood the information on teleconferencing.

Write on a separate sheet the correct response.

1. Teleconferencing is a meeting of people who are ____.
2. Executives generally prefer teleconferencing because of reduced __________________ costs and reduced _______________ time, and it gives their companies a ______________ edge.
3. Audioconferencing is available to offices with a ______________________________________.
4. Executives choose audioconferencing over videoconferencing because of ___________________.
5. Special equipment may be needed in an audioteleconferencing to equalize ___________________ and control ________________.
6. A disadvantage of audioteleconferencing is ________________.
7. The two methods of videoconferencing in use today are ______________________ and __________________.
8. Of these two methods, ____________________ is the less expensive.
9. Of these two methods, __________________ should be used when it is desirable to have participants in view during a fast-paced discussion.
10. With full-motion videoconferencing, _______________ videoconferencing allows the audience to view the speaker; but the audience may not be seen.
11. ___________________ videoconferencing allows all participants to be seen.
12. Companies that cannot afford full-motion video facilities may use the facilities of _________________________.
13. Equipment found in video facilities might include _________, ____________________, and ______________.

ACTIVITY SHEET E 5.2 (continued)

14. _______________ _______________ allows users with the needed computer hardware and software to join in an on-line discussion.

15. The number of individuals who may participate in a computer conference is ____________________.

16. List two companies that provide private teleconferencing services.

____

____

17. List steps to enter computer conferencing services available to you (consult manual or instructor for information).

____

____

____

____

____

18. In most instances, computer teleconferencing users are charged for _________________ time.

19. Efficient use of teleconferencing facilities is best accomplished if you follow a set of _______________.

20. Videotex provides much the same service as commercial data bases at a _______________ of the cost.

21. Two systems in use in Britain are __________________ and ___________________.

22. ________________________ is an experimental videotex system now being tested in Florida.

23. Videotex systems are transmitted over a modified _________ _______________________.

24. Types of information that may be available through videotex system consist of ___________, ___________, ___________, and ___________.

25. Modems convert ____________ signals to ____________.

Activity Sheet Key

E 5.2

Teleconferencing

The purpose of this activity is to determine whether or not you have understood the information on "Teleconferencing."

Write on a separate sheet the correct response.

1. Teleconferencing is a meeting of people who are ________ _separated geographically_.
2. Executives generally prefer teleconferencing because of reduced ___travel___ costs, reduced ___travel___ time, and it gives their companies a _competitive_ edge.
3. Audioconferencing is available to offices with a ________ ___telephone___.
4. Executives choose audioconferencing over videoconferencing because of ___costs___.
5. Special equipment may be needed in an audioteleconferencing to equalize ___volume___ and control ___quality___.
6. A disadvantage of audioteleconferencing is _no visual clues_.
7. The two methods of videoconferencing in use today are _____ _still picture_ and ___full motion___.
8. Of these two methods, ___still picture___ is the less expensive.
9. Of these two methods, ___full motion___ should be used when it is desirable to have participants in view during a fast paced discussion.
10. With full-motion videoconferencing, ___inward___ videoconferencing allows the audience to view the speaker; but the audience may not be seen.
11. _Inward and outward_ videoconferencing allows all participants to be seen. or two-way
12. Companies that cannot afford full-motion video facilities may use the facilities of _hotels/private companies_.
13. Equipment found in video facilities might include _cameras_ ___monitors___, and _microphones_.

Activity Sheet Key E 5.2 (continued)

14. Computer teleconferencing allows users with the needed computer hardware and software to join in an on-line discussion.

15. The number of individuals who may participate in a computer conference is unlimited.

16. List two companies that provide private teleconferencing services.
The Source CompuServ Delphi

17. List steps to enter computer conferencing services available to you (consult manual or instructor for information).
(Answers will vary.)

18. In most instances, computer teleconferencing users are charged for connect time.

19. Efficient use of teleconferencing facilities is best accomplished if you follow a set of procedures.

20. Videotex provides much the same service as commercial data bases at a fraction of the cost.

21. Two systems in use in Britain are teletex and viewdata.

22. Viewtron is an experimental videotex system now being tested in Florida.

23. Videotex systems are transmitted over a modified television.

24. Types of information that may be available through videotex system consist of financial reports, news, sales catalogs, and video games.

25. Modems convert digital signals to analog.

ACTIVITY SHEET

E 5.3

Teleconferencing

The purpose of this activity is to determine whether or not you have understood the information on teleconferencing.

On a separate sheet of paper, answer the questions below as you participate in a computer teleconference.

Instructor must observe computer teleconference.

Log on a commercial or public computer data base and participate in a conference training session. Participate in a conference and log off.

1. What is the telephone number of the computer data base?
2. What baud rate will be used to transmit data?
3. Explain procedures required to activate modem.
4. What is the user identification number and password needed to log on the system?
5. What time did you log on? __________
6. List procedures used to access conference training session.
7. What information was obtained from conference?

ACTIVITY SHEET E 5.3 (continued)

8. What time did you log off? __________

WRITTEN EXAM

E 5

Teleconferencing

The purpose of this exam is to determine whether or not you have understood the information presented on identifying the types of services available to those individuals using teleconferencing facilities.

Each of the statements is either true or false. On a separate sheet, write T for true and F for false. To master this exam, you must score 13 out of 15 points correctly, or 87%.

WRITTEN EXAM

E 5

Teleconferencing

Write on a separate sheet a T for True and an F for False for each statement.

T F 1. Teleconferencing is a meeting of people who are separated geographically.

T F 2. Executives prefer teleconferencing over more traditional face-to-face meetings because it saves travel costs and travel time.

T F 3. Audioconferencing requires a device called a bridge when more than two sites are involved.

T F 4. Audioconferencing is more expensive than videoconferencing.

T F 5. Interactive discussion requires the useof still picture videoconferencing.

T F 6. Costs for installing full-motion videoconferencing facilities range from $10,000 to $20,000.

T F 7. When an audience will not be participating in a video teleconference, it is necessary to select both inward and outward videoconferencing.

T F 8. Special training for participants in videoconferencing is advisable.

T F 9. No special equipment or software is needed for computer teleconferencing.

T F 10. The baud rate most common for computer teleconferencing is 9600.

T F 11. A record of messages created during a teleconference is not kept.

T F 12. Computer conferences are generally limited to from one to two individuals.

T F 13. All individuals wishing to participate in a computer conference must be members of the same service.

T F 14. It is not necessary to establish procedures for using teleconferencing facilities.

T F 15. Videotex provides access to computer databases at a lower cost than private services such as The Source and Delphi.

Written Exam Key

E 5

Teleconferencing

TRUE 1. Teleconferencing is a meeting of people who are separated geographically.

TRUE 2. Executives prefer teleconferencing over more traditional face-to-face meetings because it saves travel costs and travel time.

TRUE 3. Audioconferencing requires a device called a bridge when more than two sites are involved.

FALSE 4. Audioconferencing is more expensive than videoconferencing

FALSE 5. Interactive discussion requires the use of still picture videoconferencing.

FALSE 6. Costs for installing full-motion videoconferencing facilities range from $10,000 to $20,000.

FALSE 7. When an audience will not be participating in a videoconference, it is necessary to select both inward and outward videoconferencing.

TRUE 8. Special training for participants in videoconferencing is advisable.

FALSE 9. No special equipment or software is needed for computer teleconferencing.

FALSE 10. The baud rate most common for computer teleconferencing is 9600.

FALSE 11. A record of messages created during a teleconference is not kept.

FALSE 12. Computer conferences are generally limited to one to two individuals.

TRUE 13. All individuals wishing to participate in a computer conference must be members of the same service.

TRUE 14. It is not necessary to establish procedures for using teleconferencing facilities.

Written Exam Key E 5 (continued)

TRUE 15. Videotex provides access to computer data bases at a lower cost than private services such as The Source and Delphi.

INFORMATION PROCESSING

Area: Telecommunications--The Modem (Software Specific-"Netmaster")

Learner Outcome E 6: Learn What Modems Are, How They Work, and How To Choose One

Purpose: As a worker in the modern office, you will need to know what modems are, how they work, and how to choose one.

Objective: Given a written exam, you will score at least 9 out of 10 points correctly, or 90% on a written exam.

Estimated Class Time: 3 hrs.

Learner Outcome E 6

Learn What Modems Are, How They Work, and How to Choose One

LEARNING STEPS

READ:	Information Sheet E 6.1, "Learn What Modems Are, How they Work, and How to Choose One."
READ:	One or more of the resources listed.
COMPLETE:	Activity Sheet E 6.2, "Learn What Modems Are, How They Work, and How to Choose One."
COMPLETE:	Written exam E 6, "Learn What Modems Are, How They Work, and How to Choose One." Contact your instructor.

RESOURCES

Barden, William Jr., "Talking Tones--Modems: How They Work and How to Choose the One That's Right for You," What Do You Do After You Plug It In?, Howard W. Sams, Indianapolis.

"Best Sellers in Peripherals," USA Today, Source Future Computing Inc.

Nofel, Peter J., "Modem Specifications and Speculations," Modern Office Technology, May, 1984.

Sullivan, David R., T.G. Lewis, and Curtis R. Cook, "Modems," Computing Today, Microcomputer Concepts and Applications, Houghton Mifflin Company, 1985, pp. 314-317.

Williamson, Emma, "Modem Information Sheets."

EQUIPMENT/SOFTWARE NEEDED

1. A microcomputer system
2. A modem and telephone line
3. The Netmaster communication software

INFORMATION SHEET

E 6.1

Learn What Modems Are, How They Work, and How to Choose One

A modem is a peripheral device that permits one COMPUTER to communicate with another by telephone. This device converts COMPUTER signals into signals that can travel over telephone lines and converts these signals back into signals the COMPUTER understands. There must be a MODEM at each end of the telphone connection. The word is a combination of the words MO(dulate)--DEM(odulate) which is exactly what it does to the signals.

Actually, the MODEM is a board that fits into a slot inside the COMPUTER (internal modem) or one that is external (stand-alone or free standing). The external modems have the advantage of working with a wide variety of personal computers, but they require their own electrical power plug, often cost more than built-in modems, and make the computer system less portable.

Modems come in two major categories: direct connect and acoustically coupled. Direct connect modems plug directly into telephone jacks; they make a very reliable electrical connection to the telephone system. An acoustically coupled modem (acoustic coupler) is attached to the telephone system by jamming the phone's handset into two flexible receptacles in the coupler. A speaker in the coupler talks into the mouthpiece in the handset, and a microphone in the coupler listens to the earphone in the handset. They are slow and unreliable.

Modems range in price from $100 to over $2,000 for commercial-grade, high-speed modems. The cheapest adhere to a widely-accepted standard for frequency modulation that is limited to transmitting 300 bits for second (bps). It normally takes 10 bits to transmit one character. Thus, a 300-bps modem will transmit about 30 characters per second (cps), taking more than a minute to fill a 24-line-by-80-column screen. Most people read faster than 30 cps.

Communication speeds are often given in terms of a BAUD rate. This refers to the number of data signals the communications line transmits each second. The baud rate and bits per second may not be the same although most people use them interchangeably.

In addition to a modem, one needs special communications software. This software enables the computer, the modem, and the telphone to work together smoothly. In addition, some communications software allows your system to:

1. Store telphone numbers and automatically call those numbers.
2. Save the incoming information on a disk.
3. Transmit the incoming information to a printer.

With the near-term future of the modem assured, in one form or another, a look at what is currently on the market is necessary before deciding how to connect your computer to the outside world. A thorough investigation of needs, requirements, and capabilities should be made before purchasing.

FACTORS TO CONSIDER WHEN INSTALLING A MODEM (May 1985 Price Quotations)

EXTENDEND AREA SERVICE

Dial just the phone number to call: Bolingbrook, Joliet, Lemont, Lockport, New Lenox, Orland Park, Plainfield, and Romeoville.

MEASURED RATE SERVICE

Calls are billed in message units. The initial talking period is three minutes.

MODULAR JACK AND PHONE

Coast to Coast
914 East Ninth Street
Lockport, IL 60441
838-9520

OVERTALK LOCK

Larry's Lock & Key
1210 W. Jefferson
Joliet, IL
744-2228

INFORMATION CONNECTION

Grolier Electronic Publishing, Inc.
Department 333, Sherman Turnpike
Danbury, CT 06816

The Information Connection is a good instructional resource that can be used to teach on-line telecommunications. The built-in editor allows students to edit any accessed information from an information utility.

INFORMATION UTILITY

Companies that sell time on their timeshared mainframe computers have developed innovative services to attract customers. These companies offer services ranging from electronic mail to news stories, investment services, biorhythms, and travel guides. Three of the largest information utilities are: The Source, operated by the Source Telecomputing corporation; CompuServie, and H&R Company; and the Dow Jones News/Retrieval Service, operated by Dow Jones & Company, publishers of the Wall Street Journal.

COMPUSERVE

1. Major Services
    a. Communications and Bulletin Board
    b. News, Weather and Sports
    c. Electronic Shopping
    d. Financial Transaction Services
    e. Travel
    f. Entertainment and Games
    g. Home, Health, and Family
    h. Money Matters and Markets
    i. Education and References
    j. Business and Other Interests
    k. Information on Demand

2. Information Service Rates
    a. Business Account Setup Charges
        (1) First Information Services User ID Number $44.95
        (Includes application fee, Executive Service Option, user's guide and $25 free usage credit.)
        (2) Additional User ID Numbers 19.95
        (3) Monthly Minimum Per User ID Number . 20.00

    b. Connect Rates Per Connect Hour
        (1) 300 Baud (Prime/Day Time) 12.50
        (2) 300 Baud (Standard/Evening) 6.00
        (3) Access Surcharge Per Minute 25

INFORMATION SHEET E 6.1 (continued)

FUTURE COSTS

1. Toll- or long-distance calls to bulletin board systems or public access message system (PAMS).
2. Software/Hardware Budget to upgrade as needed.
3. Supply Budget: printer paper and ribbons, disks, disk storage.
4. Service, repair and security.

INFORMATION SHEET E 6.1 (continued)

BRIEF COMPARISON
of
Information Utilities Service Rates (May 1985)

	COMPUSERVE	THE SOURCE	DOW JONES
Initial Start-up (A one-time fee that covers registration, ID and password assignments for one account number.)	$49.95	$49.95	$75.00
Additional ID Numbers	19.95	49.95	75.00
Connect Rates - 300 Baud *(Prime Time/Per Hour unless stated otherwise)	12.50	20.75	.90/min
Monthly Minimum	10.00	9.00	3.00/mo. or $12 annual service fee
Access Surcharge (Per Minute)	.25	.25	.30
Account Maintenance	00.00	00.00	00.00

*Evening rates have been omitted

Prime Time: 7 a.m. - 6 p.m.

INFORMATION SHEET E 6.1 (continued)

BRIEF COMPARISON (continued)

The charges to provide for a dial-up data line:

	Monthly	One-Time
Same type service as main account number		
Extended Area Service--Touch-Tone	$33.03	$49.00
Different type service and separate billings		
Measured Rate Line--Touch-Tone	17.88	84.50

If you choose to have Illinois Bell install the inside wiring and jack, the work is billed at Time and Material rates as follows:

$17 first 15 minutes
11 each additional 15 minutes

At this point, the installation time can only be estimated. The important thing to remember is that each additional 15 minutes or fraction thereof will be billed at $11.

Example 1: 30-minute Installation Time

First 15 Minutes = $17
Second 15 Minutes = 11

Half Hour Total = $28

Example 2: One-hour Installation Time

First 15 Minutes = $17
Second 15 Minutes = 11
Third 15 Minutes = 11
Fourth 15 Minutes = 11

$50

These time and material charges include most of the materials (wire). The jack is an additional cost depending on the type of jack ordered.

A flush-with-the wall jack from Coast to Coast, Lockport, Illinois, will cost $4.59. Illinois Bell Telephone will charge 10% of the time or approximately $3 for a jack.

INFORMATION SHEET E 6.1 (continued)

Extended Area Advantages (May 1985)

1. It is the same type of telephone service as the main account number or the service that the school has now which means the one-time installation charge is less. All charges will be on the existing bill or account number.

	CENTRAL	EAST
Extended Area vs.	$49.00	$ 69.50
Measured Rate	84.50	105.00
Difference	$35.50	$ 35.50

2. Calls can be made, at no extra charge, to Bolingbrook, Joliet, Lemont, Lockport, New Lenox, Orland Park, Plainfield, and Romeoville by dialing the phone number.

3. The monthly rate ($33.03) can be cut in half ($16.52) during the summer months.

Example:

Budget Montly Rate	$16.52	Regular Monthly Rate	$33.03
Times Number of Months	x 3		x 3
Total Summer Charge	49.56		99.09
	28.50	Minus Summ. Bud. Cost	-78.06
Summer Budget Cost	$78.06	Savings	$21.03

Extended Area Disadvantages

1. Monthly billings are higher.

	CENTRAL	EAST
Extended Area Service vs.	$33.03	$66.06
Measured Rate	17.88	35.76
Difference	$15.15	$30.30

This is only a disadvantage when calls will be done on a limited basis; therefore, it is a penalty to pay for unused service.

ACTIVITY SHEET

E 6.2

Learn What Modems Are, How They Work, and How to Choose One

The purpose of this activity is to determine whether or not you have understood the information on what modems are, how they work, and how to choose one.

Complete the following statements by filling in the blanks:

1. A modem is a peripheral device that permits one computer to communicate with another by ____________________.
2. The ___________________ modem makes the computer system less portable.
3. Modems come in _______________ major categories.
4. Modems range in price from less than $100 to over ____________.
5. The cheapest modem transmits ________ bits per second.
6. Communication speeds are often given in terms of a _________ rate.
7. In addition to a modem, one needs special communications _______________.
8. Modems are needed to link ________________ because of the nature of current telephone equipment.

Activity Sheet Key

E 6.2

Learn What Modems Are, How They Work and How To Choose One

The purpose of this activity is to determine whether or not you have understood the information on what modems are, how they work, and how to choose one.

Complete the following statements by filling in the blanks:

1. A modem is a peripheral device that permits one computer to communicate with another by __telephone__.
2. The __external__ modem makes the computer system less portable.
3. Modems come in __two__ major categories.
4. Modems range in price from less than $100 to over __$2,000__.
5. The cheapest modem transmits __300__ bits per second.
6. Communication speeds are often given in terms of a __BAUD__ rate.
7. In addition to a modem, one needs special communications __software__.
8. Modems are needed to link __computers__ because of the nature of current telephone equipment.

WRITTEN EXAM

E 6

Learn What Modems Are, How They Work, and How to Choose One

The purpose of this activity is to determine whether or not you have understood the information on learning what modems are, how they work, and how to choose one.

On the exam encircle T if the statement is true and F if it is false. To master the exam, you must answer 9 out of 10 questions correctly, or 90%.

WRITTEN EXAM

E 6

Learn What Modems Are, How They Work, and How to Choose One

Please circle your response.

T F 1. When one computer communicates with another, a modem is needed at only one of the telphones.

T F 2. There is more than one kind of modem.

T F 3. The acoustically coupled modem is faster than the direct connection.

T F 4. The cheapest modem transmits 200 bits per second.

T F 5. It is not important to consider the ability to save information on a disk when selecting a telecommunications package.

T F 6. Modems come in two major categories.

T F 7. Communication speeds are often given in a BAUD rate.

T F 8. If your computer is the product of a major manufacturer, you can assume that everything you need to hook up a modem is provided.

T F 9. The modem market will probably not become more competitive in the next few years even though more companies enter the market.

T F 10. When selecting a modem, a look at what is on the market is necessary before deciding how to connect your computer to the outside world.

Written Exam Key

E 6

Learn What Modems Are, How They Work, and How to Choose One

Please circle your response.

FALSE 1. When one computer communicates with another, a modem is needed at only one of the telphones.

TRUE 2. There is more than one kind of modem.

FALSE 3. the acoustically coupled modem is faster than the direct connection.

FALSE 4. The cheapest modem transmits 200 bits per second.

FALSE 5. It is not important to consider the ability to save information on a disk when selecting a telecommunications package.

TRUE 6. Modems come in two major categories.

TRUE 7. Communication speeds are often given in a BAUD rate.

FALSE 8. If your computer is the product of a major manufacturer, you can assume that everything you need to hook up a modem is provided.

FALSE 9. The modem market will probably not become more competitive in the next few years even though more companies enter the market.

TRUE 10. When selecting a modem, a look at what is on the market is necessary before deciding how to connect your computer to the outside world.

INFORMATION PROCESSING

Area: Telecommunications--The Modem (Software Specific - "Netmaster.")

Learner Outcome E 7: Plug in Your Networker Modem and Boot Your Communication Disk

Purpose: As a worker in the modern office, you will need to learn how to use the modem; thus, you will need to know how to plug in the Networker Modem and boot the communication disk.

Objective: Given a written exam, you will be able to plug in the Networker Modem and boot the communicaton disk and answer at least 9 out of 10 questions correctly, or 90%.

Estimated Class Time: 1 hr.

Learner Outcome E 7

Plug in Your Networker and Boot Your Disk

LEARNING STEPS

READ: "Plugging in Your Networker Modem," pp. 2-3. Resource listed below.

READ: "Booting Your Communication Software" p. 4. Resource listed below.

OBSERVE: Teacher's demonstration of plugging in the Networker Modem and booting the communication disk.

PRACTICE: Plugging in the Networker Modem and booting the communication disk (to be observed by teacher).

COMPLETE: Activity Sheet E 7.1, "Plug in Your Networker Modem and Boot Your Communication Disk."

COMPLETE: Written Exam E 7.2, "Plug in Your Networker Modem and Boot Your Communication Disk." Contact your teacher for the exam.

RESOURCES

"Booting Your Software," and "Plugging in Your Networker," Networker Modem Instruction Book, Zoom Telephonics, Inc., pp. 2-4.

EQUIPMENT/SOFTWARE NEEDED

1. A microcomputer system
2. A modem, telephone, and line
3. The Networker Communication Software

ACTIVITY SHEET

E 7.1

Plug In Your Networker Modem and Boot Your Communication Disk

The purpose of this activity is to determine whether or not you have understood the information on plugging in the Networker Modem and booting your communication disk.

Complete the statements by filling in the blanks on an answer sheet.

1. The Networker is the name of the ______________.
2. The Networker plugs into a slot in the ________________.
3. Use slot ___________ for the Networker.
4. When you turn off the power switch on the computer and remove the cover, you should put the Originate/Off/Answer switch in the _______________ (off) position.
5. Unplug the telphone at the wall jack and plug it into either one of the black modular connectors on the _______________.
6. You should then connect your telephone to the _______________.
7. To use the communication software, you need to have a disk drive for your computer and at least _______________ or RAM memory.
8. The process of starting up any software is called ___________ __________ _____________.
9. After you boot your communication software, a title page will appear on the monitor screen. Hit the ____________ to bring up the menu.
10. The computer is turned ______________ as you begin to boot the communication software.

Activity Sheet Key

E 7.1

Plug In Your Networker Modem and Boot Your Communication Disk

The purpose of this activity is to determine whether or not you have understood the information on how to plug in the Networker Modem and boot your communication disk.

Complete the statements by filling in the blanks on an answer sheet.

1. The Networker is the name of the modem.
2. The Networker plugs into a slot in the computer.
3. Use slot 2 for the Networker.
4. When you turn off the power switch on the computer and remove the cover, you should put the Originate/Off/Answer switch in the center (off) position.
5. Unplug the telphone at the wall jack and plug it into either one of the black modular connectors on the Networker.
6. You should then connect your telephone to the Networker.
7. To use the communication software, you need to have a disk drive for your computer and at least 48K or RAM memory.
8. The process of starting up any software is called booting the disk.
9. After you boot your communication software, a title page will appear on the monitor screen. Hit the return to bring up the menu.
10. The computer is turned off as you begin to boot the communication software.

WRITTEN EXAM

E 7.2

Plug in Your Networker Modem and Boot Your Communication Disk

Definition

The purpose of this activity is to determine whether or not you have understood the information on plugging in the Networker Modem and booting your communication disk.

On the exam, circle T if the statement is True and F if it is False. To master the exam, you must answer 9 out of 10 questions correctly, or 90%.

WRITTEN EXAM

E 7.2

Plug in Your Networker Modem and Boot Your Communication Disk

T F 1. The Networker Modem plugs into a slot in the printer.

T F 2. Slot #1 is preferred for the Networker Modem.

T F 3. To prevent damage to the system, the power switch should be turned off when plugging in the Networker Modem.

T F 4. When plugging in your Networker Modem put the Originate/Off/Answer switch in the upper position.

T F 5. When the Originate/Answer switch is in the Off position, the phone will act like a normal phone.

T F 6. The telephone line is connected to the Networker Modem.

T F 7. If you prefer, you can connect your Networker Modem by using an inexpensive T-adapter that makes one jack into two.

T F 8. To use the communication software you do not need a disk drive.

T F 9. The process of starting the computer is called "booting the disk."

T F 10. You need to hit the Return key to bring up the menu.

Written Exam Key

E 7.2

Plug in Your Networker Modem and Boot Your Communication Disk

FALSE 1. The Networker modem plugs into a slot in the printer.

FALSE 2. Slot #1 is preferred for the Networker modem.

TRUE 3. To prevent damage to the system, the power switch should be turned off when plugging in the Networker modem.

FALSE 4. When plugging in your Networker modem, put the Originate/Off/Answer switch in the upper position.

TRUE 5. When the Originate/Answer switch is in the Off position, the phone will act like a normal phone.

TRUE 6. The telephone line is connected to the Networker modem.

TRUE 7. If you prefer, you can connect your Networker modem by using an inexpensive T-adapter that makes one jack into two.

TRUE 8. To use the communication software you do not need a disk drive.

FALSE 9. The process of starting the computer is called "booting the disk."

TRUE 10. You need to hit the Return key to bring up the menu.

INFORMATION PROCESSING

Area: Telecommunications--The Modem - (Sofware Specific - "Netmaster")

Learner Outcome E 8: Learn How to Use the Main Menu and Its Variations

Purpose: It will be necessary to learn the use of the menu in order to use the modem successfully.

Objective: Given a written exam, you will be able to use the software menu and apply possible variations with at least 9 out of 10 questions answered correctly, resulting in a score of 90%.

Estimated Class Time: 1 hr.

Learner Outcome E 8

Learn How to Use the Main Menu and Its Variations

LEARNING STEPS

READ:	"How to Use Netmaster." See Resource listed below.
READ:	"Configuring Netmaster for Your Systems." See Resource listed below.
PRACTICE:	Configuring the Netmaster (to be observed by teacher).
COMPLETE:	Activity Sheet E 8.1, "Learn How to Use the Main Menu and Its Variations."
COMPLETE:	Written exam E 8, "Learn How to Use the Main Menu and Its Variations."

RESOURCES

"How to Use Netmaster" and "Configuring Netmaster for Your Systems," Netmaster Communication Software, Zoom Telephonics, Inc., pp. 1-2 and 3-8.

EQUIPMENT/SOFTWARE

1. A microcomputer system
2. A modem, telephone, and line
3. The Netmaster communication software
4. Data disk

ACTIVITY SHEET

E 8.1

Learn How to Use the Main Menu and Its Variations

The purpose of this activity is to determine whether or not you have understood how to use the main menu and its variations.

Complete the statements by filling in the blanks.

1. The ____________ is a pointing device and is used to direct your attention to a particular part of the screen.
2. You can give your software commands by pressing the _______ key in conjunction with another key.
3. Before you can start using Netmaster, it's necessary to let it know what hardware you have. This is known as _________ the program.
4. In addition to finding the Configure Menu, it is possible to configure the serial card, the disk drives, the printer, the shift key mod, and the __________________.
5. The command to print is ______________.
6. ____________ is the Netmaster attention key. It allows you to get back to a menu at any time.
7. When interacting with Netmaster, you usually need to use three keys: the up and down arrow keys and the ___________.
8. After Netmaster has been _______________ you will know what type of serial card you have, what slot it's in, what slot your printer is in, and how many disk drives you have.
9. Netmaster will then be ________________ for your particular machine.
10. After you have configured Netmaster, you can look at it by selecting "Configure" from the Main Options Menu and then select "Show _____________."

Activity Sheet Key

E 8.1

Learn How to Use the Main Menu and Its Variations

The purpose of this activity is to determine whether or not you have understood how to use the main menu and its variations.

Complete the statements by filling in the blanks.

1. The cursor is a pointing device and is used to direct your attention to a particular part of the screen.
2. You can give your software commands by pressing the CTRL key in conjunction with another key.
3. Before you can start using Netmaster, it's necessary to let it know what hardware you have. This is known as configuring the program.
4. In addition to finding the Configure Menu, it is possible to configure the serial card, the disk drives, the printer, the shift key mod, and the screen.
5. The command to print is CTRL @.
6. CTRL O is the Netmaster attention key. It allows you to get back to a menu at any time.
7. When interacting with Netmaster, you usually need to use three keys: the up and down arrow keys and the return.
8. After Netmaster has been configured you will know what type of serial card you have, what slot it's in, what slot your printer is in, and how many disk drives you have.
9. Netmaster will then be customized for your particular machine.
10. After you have configured Netmaster, you can look at it by selecting "Configure" from the Main Options Menu and then select "Show configure."

WRITTEN EXAM

E 8.1

Learn How to Use the Main Menu and Its Variations

The purpose of this activity is to determine whether or not you have understood the information on learning how to use the main menu and its variations.

Each of the incomplete statements is followed by several words, phrases, or numbers. Choose the one that best completes the statement correctly. Place the letter associated with that choice (A, B, or C) in the numbered blank space on your answer sheet. Please do not write on this test sheet. To master this exam, you must answer 9 out of 10 questions correctly, or 90%.

WRITTEN EXAM

E 8

Learn How to Use the Main Menu and Its Variations

1. When you boot your software, a title page will appear on the monitor screen. To bring up the Main Options Menu, press the ________________.

   A. return key
   B. space bar
   C. delete

2. In the Main Options, press the arrow key several times, move the cursor to 'Configure,' and then press ___________.

   A. CTRL A
   B. CTRL
   C. return

3. The selection is made by the ________________.

   A. return key
   B. bar
   C. space bar

4. The _______ is a pointing device that is used to direct your attention to a particular part of the screen.

   A. cursor
   B. menu
   C. configuration

5. The Netmaster modem is usually placed in slot _________.

   A. 1
   B. 2
   C. 3

6. Before you can start using Netmaster, let it know what hardware you have. This is known as __________.

   A. screening
   B. customizing
   C. configuring

WRITTEN EXAM E 8 (continued)

7. When you select "Customize Program," the main menu will disappear and the _____________ Menu will appear on the screen.

A. customize
B. carrier
C. configuration

8. After all items have been configured, you can hit the _____________.

A. CTRL key
B. CTRL A key
C. RETURN key

9. You can give your software commands by pressing the _____________.

A. CTRL key in conjunction with another key
B. CTRL A key in conjunction with another key
C. CTRL S key in conjunction with another key

10. Rather than retyping your conversation to review later, you can store it on ____________.

A. an interface card
B. a menu
C. a data disk

Written Exam Key

E 8

Learn How to Use the Main Menu and Its Variations

1. When you boot your software, a title page will appear on the monitor screen. To bring up the Main Options Menu, press the ________________.

   B. space bar

2. In the Main Options, press the arrow key several times, move the cursor to 'Configure,' and then press ___________.

   C. return

3. The selection is made by the _______________.

   A. return key

4. The _______ is a pointing device that is used to direct your attention to a particular part of the screen.

   A. cursor

5. The Netmaster modem is usually placed in slot _________.

   B. 2

6. Before you can start using Netmaster, let it know what hardware you have. This is known as ___________.

   C. configuring

7. When you select "Customize Program," the main menu will disappear and the _____________ Menu will appear on the screen.

   A. customize

8. After all items have been configured, you can hit the _____________.

   C. RETURN key

9. You can give your software commands by pressing the ___________.

   A. CTRL key in conjunction with another key

10. Rather than retyping your conversation to review later, you can store it on __________.

C. a data disk

INFORMATION PROCESSING

Area: Telecommunications--The Modem (Software Specific - "Netmaster")

Learner Outcome E 9: Learn How to Send and Receive Messages

Purpose: As an up-to-date office employee, you will need to know how to send and receive messages on the computer.

Objective: Given adequate information and equipment, you will be able to send and receive messages accurately on the computer.

Estimated Class Time: 3 hrs.

Learner Outcome E 9

LEARNING STEPS

Learn How to Send and Receive Messages

REVIEW: "Configuring Netmaster for Your Systems," pp. 3-8. See Resource listed in Learner Outcome E 8.

REVIEW: "Save Configuration to Data Disk," "Save Configuration to Netmaster Disk," and "Load Configuration from Data Disk," p. 50 from Resource listed on next page.

READ: "The Netmaster Editor," pp. 17 and 35. See resource listed on next page.

READ: "Bulletin Boards" under Converse Procedures & Bulletin Board List. See Resource listed on next page.

READ: "Dialing Up With a Networker Modem." p. 10. See Resource listed on next page.

READ: "Hanging Up." p. 12. See Resource listed on next page.

READ: Capturing the Conversation" and "Turning the Text Trap On and Off." pp. 15-16. See Resource listed on next page.

REVIEW: Information Sheet E 9.1, "Changing and Receiving Methods."

PRACTICE: Activity Sheet E 9.2, "Sending and Receiving Messages."

COMPLETE: Exam E 9, "Sending and Receiving Messages."

COMPLETE: Performance/Product Checklist E 9, "Sending and Receiving Messages." See your instructor.

RESOURCES

E 9

Flynn, John, "Send a Short Message," "Receive a Short Message," "Send a Long Message," and "Receive a Lengthy Message," Tri-County Consortium, Joliet.

Netmaster Communication Software, Zoom Telephonics, Inc.
"Bulletin Boards" (under Converse Procedures), p. 9.
"Capturing the Conversation" and "Turning the Text Trap On and Off," pp. 15-16.
"The Netmaster Editor," pp. 17-19.
"Dialing Up With a Networker Modem," p. 10.
"Hanging Up," p. 12.
"Save Configuration to Data Disk," p. 50
"Save Configuration to Netmaster Disk," p. 50
"Load Configuration from Data Disk," p. 50

Williamson, Emma, "Bulletin Boards."

EQUIPMENT/SOFTWARE

1. A microcomputer system
2. A mode, telephone, and telephone line
3. The Netmaster communication software
4. Data disk

INFORMATION SHEET

E 9.1

Changing and Receiving Methods

LOCAL BULLETIN BOARDS

Olympus	727-4020
Dark Castle	729-0188
La Gata	744-5531
JAMS	838-1020
64 Infocom	722-4049
Phun House	726-2909
Monastery	723-2522
Void	726-2909
Edu-Net (Renaissance Center)	722-7480

AIMS (RCP/M)..................312-789-0499
APPLE CORE (PMS)..............312-295-6926
APPLE JUICE (NET)..........312-963-5384
APPLE NET (UBBS)............312-685-9573
APPLE TECHNICAL (NET)......312-935-3091
ARGONNE LABS (RCP/M).......312-972-6979

BYTEING IRISH (NET)........219-239-5875

C-64 USERS GROUP (CCBS)....312-583-6364
C.A.M.S. (MCMS).............312-927-1020
C.A.S.A.T. (CBBS)..........312-443-3744
CBBS #1 (CBBS)..............312-545-8086
CHICAGO COMPUTER SOCIETY (IBBS)
..................312-520-3191
CHICAGO PUB LIB (PMS)......312-235-3200
CHICAGOLAND ATARI USERS GROUP (AMIS)
..................312-889-1240
CODE (ABBS)..................312-882-2926
COMMODORE (PET BSS)........312-397-0871
COMPUTER GUILD (TBBS)......312-640-7930
C.S.M.S. (MCMS).............312-697-6532

DARK CASTLE (GBBS).........815-729-0188

EPSON MIDWEST (RBBS).......312-981[illegible]2

IBM PC (BBS)..................312-991-8837
IBM PC (RBBS)................312-376-7598

J.A.M.S. (MCMS).............815-838-1020

MICRO CO-OP (ABBS).........312-228-1495

NON-PROFIT INFO CENTER (OABB)
..................312-752-7412

OS-9 USERS GROUP (HP-1)....312-397-8308

P.C.M.S. (MCMS).............312-462-7560

RJNET (NET)...................312-393-4755

TI-WILL (TIBB)...............815-886-2906
TI USERS GROUP (TIBB)......312-966-2342

UNIV CONFERENCE TREE.......312-942-0087

WHEN CALLING OTHER SYSTEMS PLEAS[illegible]T THEM KNOW ABOUT EDU - NET...

INFORMATION SHEET E 9.1 (continued)

Sending a Short Message

When you have one screen or less to send:

1. BOOT Netmaster software disk. (Put software disk in drive one and then turn on the computer switch.)
2. Put the Netmaster mode switch in the center position (off).
3. The MAIN OPTIONS MENU is on the screen, and the cursor (asterisk) is on the first entry in the menu which is CONVERSE. Press RETURN. The mode, in the status line at the top of the screen, changes to CONVERSE OPTIONS, and the cursor is on MAIN OPTIONS.
4. In the CONVERSE OPTIONS MENU, use the down or right arrow and RETURN keys to select the following options:
    a. TRAP ON [RETURN]
    b. HALF DUPLEX [RETURN]
5. In the CONVERSE OPTIONS MENU, use the down or right arrow and RETURN keys to select PICK UP. Don't hit RETURN yet!!!
6. Pick up the phone and dial the phone number you wish to connect to.
7. When the other end picks up, wait for the tone of its modem. When you hear it, press the RETURN key; turn the modem switch to SEND [circle on the white box]; and hang up the phone. The other computer's modem switch should be in the RECEIVE position [triangle].
8. Type message. Name it "PRACTICE I."
9. When finished, press the RETURN key twice and type [END].
10. Type SAVE "PRACTICE I."
11. Turn on the printer.
12. Strike [SHIFT/CONTROL/@] to PRINT WHAT IS ON THE SCREEN.
13. You are finished. To shut down, type (Control/0), go to the HANG UP option, press RETURN, type (Y), and move the modem switch to center position (OFF).

INFORMATION SHEET E 9.1 (continued)

When you have one screen or less to receive:

1. BOOT Netmaster software disk. (Put software disk in drive one, and then turn on the computer switch).

2. Put the Netmaster mode switch in the center position.

3. The MAIN OPTIONS MENU is on the screen, and the cursor (asterisk) is on the first entry in the menu which is CONVERSE. Press RETURN. The mode, in the status line at the top of the screen, changes to CONVERSE OPTIONS, and the cursor is on MAIN OPTIONS.

4. In the CONVERSE OPTIONS MENU, use the down or right arrow and RETURN keys to select the following options:
   a. HALF DUPLEX (RETURN)
   b. TRAP ON (RETURN)

   Watch status line change at the top of the screen.

5. In the CONVERSE OTPIONS MENU, use the down or right arrow and RETURN keys to select ANSWER. Don't hit RETURN yet!!!

6. When the phone rings, pick it up and wait for the tone of the other modem. When you hear it, press the RETURN key, turn the modem switch to the RECEIVE position (triangle), and hang up the phone. The other computer's modem switch should be in the SEND position (circle).

7. You should now be receiving a message on your screen.

8. When the person at the other computer is finished sending, he or she will type (END).

9. You type (RECEIVED).

10. Turn on the printer.

11. Strike (SHIFT/CONTROL/@) to PRINT what is on the screen.

12. You are finished. To shut down, strike (Control/0), go to the HANG UP option, press RETURN, type (Y), and move the modem switch to center position.

INFORMATION SHEET E 9.1 (continued)

When you have more than one screen to send:

1. BOOT a word processing program. Consult your word processing software manual or your Netmaster Software booklet on the pages indicated for BOOTING, CONFIGURING (pp. 3-8 & 59), EDITING (pp. 17 & 35), and SAVING procedures.
2. Type and edit your message. (Load into text buffer before editing. See page 17.)
3. SAVE your message on a previously formatted, initialized data disk.
4. Turn the computer OFF now!
5. Put Netmaster in drive one, and turn on the computer.
6. Put the Netmaster mode switch in the center position (OFF).
7. The MAIN OPTIONS MENU is on the screen, and the cursor (asterisk) is on the first entry in the menu which is CONVERSE. The mode, in the status line at the top of the screen, changes to CONVERSE OPTIONS; and the cursor is on MAIN OPTIONS.
8. In the CONVERSE MODE, drop down to HALF DUPLEX by hitting the right or down arrow key. Hit RETURN.
9. In the CONVERSE MODE, go down to PICK UP by using the right or down arrow key. Don't hit RETURN yet!!!
10. Pick up the phone and dial the phone number you wish to connect to. Inform the person you have a message to send. The person will have to BOOT, turn on the Trap, Half Duplex, and go to the Answer Mode.
11. When the other person is ready, he or she will then turn the modem switch to RECEIVE (triangle), and you will hear the pitched tone on the phone. Turn your modem switch to SEND (circle). The tone on the phone will change pitch.
12. Hit RETURN and hang up your phone. You are now ready to send your message that you stored on the word processing data disk.
13. Hit (CONTROL/0) to get to the CONVERSE OPTIONS MODE; then hit RETURN to get to the MAIN OPTIONS MODE.

14. In the MAIN OPTIONS MODE, go to TRANSMIT/RECEIVE by using the right or down arrow key; then hit RETURN.

15. Now go to TRANSMIT TO NET-M, using the right or down arrow key; then hit RETURN.

16. Your screen will now ask you to insert the data disk. The data disk contains the message you wish to send. Put the data disk in drive one, and hit RETURN. If you have two drives, go to the CONFIGURE option and set the data disk to drive two. Netmaster will be in drive one, and the data disk will be in drive two.

17. Go to the DISK ACCESS option. Hit RETURN.

18. Go to the CATALOG. Hit RETURN. Your screen will now list all files on the data disk and ask you to type in the filename of the one you wish to send. Type in the filename; then hit RETURN.

19. If the modem is functioning, it will send, test and inform you when it is finished sending.

20. Remove the data disk and insert Netmaster into drive one; then type (CONTROL/0).

21. Hit RETURN to go to MAIN OPTIONS MENU.

22. Hit RETURN to go to CONVERSE OPTIONS.

23. Go to PICK UP by using your right or down arrow key; then hit RETURN.

24. You can now type a note to the other computer.

25. When finished, press the RETURN key twice and type (END).

26. Now close with (CONTROL/0), go to the HANG UP option, press RETURN, type (Y), and move the modem switch to center position (OFF).

INFORMATION SHEET E 9.1 (continued)

Receiving a Lengthy Message

When you have more than one screen to receive:

1. BOOT Netmaster software disk. (Put software diskin drive one, and turn on the computer switch.)
2. Put the Netmaster mode switch in the center position (OFF).
3. The MAIN OPTIONS MENU is on the screen, and the cursor (asterisk) is on the first entry in the menu which is CONVERSE. The mode, in the status line at the top of the screen, changes to CONVERSE OPTIONS; and the cursor is on MAIN OPTIONS.
4. In CONVERSE MODE, go to TRAP ON by using the right or down arrow key; hit RETURN.
5. In CONVERSE MODE, go to HALF DUPLEX by using the right or down arrow key; hit RETURN.
6. In CONVERSE MODE, go to ANSWER by using the right or down arrow key. Don't hit RETURN yet!!!
7. When the phone rings, pick it up and wait for the tone of the other modem. When you hear it, press the RETURN key; turn the modem switch to RECEIVE Position (triangle); and hang up the phone. The other computer's modem switch should be in the SEND position (circle).
8. You should now be receiving a message on your screen. It won't all make sense. Notice the buffer indicator in the lower right of your screen. It is indicating that the message that is coming in is being stored.
9. When it is finished, your computer will return to the CONVERSE MODE. Go to MAIN OPTIONS by hitting RETURN.
10. In the MAIN OPTIONS MODE, go to PRINT BUFFER, using the right or down arrow key; hit RETURN.
11. Turn on the printer.
12. Strike (CONTROL/0), go to the HANG UP option, press RETURN, type (Y), and move the modem switch to center position (OFF).

ACTIVITY SHEET

E 9.2

Sending and Receiving Messages

The purpose of this activity is to give you practice in sending a message on the computer and in receiving one (See your teacher).

Procedures

1. Be sure the trap is on and save it to the data disk.
2. Use Half Duplex.
3. Name the file "PRACTICE I."
4. Refer to your book when in doubt.

Following is the message which you are to send:

An initial response to the topic of telecommunications can be that of "that sounds awfully technological to me." In fact, telecommunications is merely a formal name given to the process of communicating through machines. And machines can be configured many different ways and can be used to transmit information, data, and now, pictures. Skill using the machines that telecommunicate is shaping up to be an important skill for involvement in the future workplace.

Practice receiving a message by having a classmate send a reply to this message. (Show your teacher the results).

EXAM

E 9

Sending and Receiving Messages

The purpose of this activity is to determine whether or not you have understood the information on learning how to send and receive messages.

To master the exam, you must send a short and a long message accurately.

Before attempting this task for mastery, carefully review this checklist. When you feel you are ready for evaluation, contact your teacher. You must complete your performance within 40 minutes and must score at least 5 out of 5 points or 100%.

AREA: Telecommunications - The Modem

LEARNING OUTCOME: Sending and Receiving Messages

LEARNING OUTCOME: E 9

PERFORMANCE/PRODUCT CHECKLIST

STUDENT ______________________ PERFORMANCE ATTEMPT 1 2 3 4

EVALUATOR ______________________ DATE OF ATTEMPT __________

EVALUATION SITE ______________

CRITICAL ITEMS	ITEMS TO BE OBSERVED OR CHECKED	RATING YES/NO
1.	Dial up another computer system and make connection?	___ ___
2.	Send the message and give it a name?	___ ___
3.	Trap the message for transferring to a disk?	___ ___
4.	Complete the procedures for breaking the connection to the other computer?	___ ___
5.	Work alone and return all materials to proper storage areas?	___ ___

TOTAL POINTS 5

POINTS NEEDED 5

SCORE ______

EXAM

E 9

Learn How to Send and Receive Messages

Short Message (Use "Test 1" for file name.)

Office Automation reflects the impact of modern technology on the production of office documents.

This modern technology creates an efficient system of communicating one person's ideas in the form of data, text, image, or voice to another individual.

Long (two page) Message (Use "Test 2" for file name.)

In an office automation system, modern technology creates an efficient system of communicating one person's ideas in the form of data, text image, or voice of another individual. This information processing consists of word processing, data processing, graphics, OCR, intelligent copiers/printers, phototypsetters, micrographics, teleconferencing, electronic mail, and voice mail. These technologies are linked together through one common denominator known as "telecommunications."

Telecommunications is the electronic transfer of information from one point in an office automation system to another through a unit that performs the necessary format conversions and controls the rate of transmission. Or, simply stated, it is the method by which one piece of electronic equipment can talk to another piece of electronic equipment.

INFORMATION PROCESSING

Area: Telecommunications - The Modem (Software Specific - "Netmaster")

Learner Outcome E 10: Edit and Transmit Files

Purpose: The editing and transmitting of files are two qualifications an employer expects of those who work in telecommunications.

Objective: Given proper information and equipment, you will be able to edit and transmit files accurately on the computer. To master the exam, you are expected to answer correctly 9 out of 10 statements, or 90%. To complete the Performance/Product Checklist satisfactorily, you are expected to score 5 out of 5 points, 100%.

Estimated Class Time: 3 hrs.

Learner Outcome E 10

Edit and Tansmit Files

LEARNING STEPS

READ:	"The Netmaster Editor." Resources listed on next page.
PRACTICE:	Loading disk file into text buffer and enter in the Editor.
READ:	"Transmitting and Receiving Files." Resources listed on next page.
REVIEW:	Information Sheet E 10.1, "Send a File."
REVIEW:	Information Sheet E 10.2, "Send a File and Receive a File."
PRACTICE:	Activity Sheet E 10.3, "Editing and Transmitting Files."
COMPLETE:	Written Exam E 10, "Edit and Transmit Files."
COMPLETE:	Performance/Product Checklist E 10, "Edit and Transmit Files."

RESOURCES

E 10

Flynn, John, "Sending a File" and "Receiving a File," Tri-County Consortium, Joliet.

Netmaster Communications Software, Zoom Telephonics, Inc.
"Entering the Editor," pp. 26-28.
"Loading Disk File into Text Buffer," pp. 17-19.
"The Netmaster Editor," pp. 17-19 and 35-40.
"Transmitting and Receiving Files," pp. 23-24.

EQUIPMENT/SOFTWARE

1. A microcomputer system
2. A modem, telephone, and telephone line
3. The Netmaster communication software
4. Data disk
5. Netmaster Communications Software book

INFORMATION SHEET

E 10.1

Send a File

When you want to send a file from a data disk:

1. Put Netmaster software disk in drive one, and turn on the computer.
2. Put the Netmaster mode switch in the center position (OFF).
3. The MAIN OPTIONS MENU is on the screen, and the cursor (asterisk) is on the first entry in the menu which is CONVERSE. Press RETURN. The mode, in the status line at the top of the screen, changes to CONVERSE OPTIONS; and the cursor is on MAIN OPTIONS.
4. In the CONVERSE MODE, drop down to HALF DUPLEX by hitting the right or down arrow key. Hit RETURN.
5. In the CONVERSE MODE, go down to PICK UP by using the right or down arrow key. Don't hit RETURN yet!!!
6. Pick up the phone and dial the phone number you wish to connect. Inform the person you have a data file message to send. The person will have to BOOT, turn on the Trap, Half Duplex, and go to the Answer Mode.
7. When the other person is ready, he/she will then turn the modem switch to RECEIVE (triangle), and you will hear the pitched tone on the phone. Turn your modem switch to SEND (circle). The tone on the phone will change pitch.
8. Hang up your phone and hit RETURN. You are now ready to send your message or file that you stored on the word processing data disk.
9. Hit (CONTROL/O) to get to the CONVERSE OPTIONS MODE; then hit RETURN to get to the MAIN OPTIONS MODE.
10. In the MAIN OPTIONS MODE, go to TRANSMIT/RECEIVE by using the right or down arrow key; then hit RETURN.
11. Now go to TRANSMIT TO NET-M, using the right or down arrow key; then hit RETURN.

INFORMATION SHEET E 10.1 (continued)

12. Your screen will now ask you to insert the data disk. the data disk contains the message or file you wish to send. Put the data disk in drive one and hit RETURN. IF you have two drives, go to the CONFIGURE option and set the data disk to drive two. Netmaster will be in drive one, and the data disk will be in drive two.

13. Go to the DISK ACCESS option. Hit RETURN.

14. Go to CATALOG. Hit RETURN. Your screen will now list all files on the data disk and ask you to type in the filename of the one you wish to send. Type in the filename and hit RETURN.

15. If the modem is functioning, it will send,test, and inform you when it is finished sending.

16. Remove the data disk and insert Netmaster into drive one; type (CONTROL/0).

17. Hit RETURN to go to MAIN OPTIONS MENU.

18. Hit RETURN to go to CONVERSE OPTIONS.

19. Go to PICK UP by using your right or down arrow key and then hit RETURN.

20. You can now type a note to the other computer.

21. When finished, press the RETURN key twice and type (END).

22. Now close with (CONTROL/0), go to the HANG UP option, press RETURN, type (Y), and move the modem switch to center position (OFF).

INFORMATION SHEET

E 10.2

Send a File and Receive a File

When you receive a call from another computer and there is a file to send:

1. BOOT Netmaster software disk (Put software disk in drive one, and turn on the computer switch).
2. Put the Netmaster mode switch in the center position (off).
3. The MAIN OPTIONS MENU is on the screen, and the cursor (asterisk) is on the first entry in the menu which is CONVERSE. Press RETURN. The mode, in the status line at the top of the screen, changes to CONVERSE OPTIONS; and the cursor is on MAIN OPTIONS.
4. In CONVERSE MODE, drop down to HALF DUPLEX, by using the right or down arrow key; hit RETURN.
5. In CONVERSE MODE, drop down to ANSWER by using the right or down arrow key. Don't hit RETURN yet!!!
6. When the phone rings, pick it up and wait for the tone of the other modem. When you hear the high pitched tone, press the RETURN key, turn the modem switch to RECEIVE position (triangle), and hang up the phone. The other computer's modem switch should be in the SEND position (circle).
7. Strike (CONTROL/O).
8. You are now in the CONVERSE MODE. Hit RETURN to go to the MAIN MENU.
9. In MAIN MODE MENU, drop down to TRANS/RECEIVE, using the right or down arrow key; hit RETURN.
10. In XMIT/RECEIVE MENU, drop down to RECEIVE from NET-M and hit RETURN.
11. You are now being prompted to put a data disk in drive one. This disk must be initialized with DOS ahead of time. See your computer manual for the initialization procedures for your system. You could also go to the CONFIGURE option and set drive two for the data disk access. This will eliminate inserting and taking out disks from drive one.
12. Transmission is automatic now. When the transmission is completed, your screen will return to the XMIT/RECEIVE OPTIONS.

INFORMATION SHEET E 10.2 (continued)

13. Go to MAIN OPTIONS by hitting RETURN.
14. Go to CONVERSE by hitting RETURN.
15. Go to ANSWER by using the right or down arrow key; hit RETURN.
16. You can now communicate with the sender.
17. Strike (CONTROL/O), go to the HANG UP option, press RETURN, type (Y), and move the modem switch to center position (OFF).

ACTIVITY SHEET

E 10.3

Editing and Transmitting Files

The purpose of this activity is to give you practice in sending a file from the data disk.

Procedures

1. Use "PRACTICE I" from the data disk.
2. Refer to your book when in question as to what to do.
3. Following is the message (PRACTICE I) which you are to send:

An initial response to the topic of telecommunications can be that of "that sounds awfully technological to me." In fact, telecommunications is merely a formal name given to the process of communicating through machines. And machines can be configured many different ways and can be used to transmit information, data, and now, pictures. Skill using machines that telecommunicate is shaping up to be an important skill for involvement in the future workplace.

Practice receiving a message by having a classmate send a reply to this message (Show your teacher the results).

WRITTEN EXAM

E 10.3

Edit and Transmit Files

The purpose of this exam is to determine whether or not you have understood how to edit and transfer files.

To master the exam (E 10), you must answer correctly 9 out of 10 statements, or 90%. Before attempting the task for mastery, review the material in this section carefully.

When you feel you are ready for the Performance/Product Checklist E 10, contact your teacher. You must complete your performance within 30 minutes and must score at least 5 out of 5 points, or 100%.

WRITTEN EXAM

E 10

Edit and Transmit Files

1. Before editing a disk file, you must first load it into the __________ __________.

2. The _________ __________ is a powerful tool that lets you create a document and edit the text buffer or a disk file.

3. To enter the Editor, select ________ _______ from the Main Options Menu.

4. To exit the Editor and get back to the Main Options Menu, press the ________ _______ _______.

5. To send a disk file, you must move it to the ________ before transmitting it.

6. When transmitting, your modem should be in ______ mode and the receiving computer should be in ________ mode.

7. Both computers should begin in the _________ _________ __________ when a file is to be transmitted.

8. A _________ connection must be established before the Transmit/Receive section of Netmaster can be used.

9. When switching from one activity to another, you will always pass through the ______________ __________ Menu.

10. The __________ _________ allows you to capture a conversation.

Written Exam Key

E 10

Edit and Transmit Files

1. Before editing a disk file, you must first load it into the text buffer.

2. The Netmaster Editor is a powerful tool that lets you create a document and edit the text buffer or a disk file.

3. To enter the Editor, select Enter Editor from the Main Options Menu.

4. To exit the Editor and get back to the Main Options Menu, press the Netmaster Attention Key (Control 0)

5. To send a disk file, you must move it to the buffer before transmitting it.

6. When transmitting, your modem should be in originate mode and the receiving computer should be in answer mode.

7. Both computers should begin in the Main Options Menus when a file is to be transmitted.

8. A phone connection must be established before the Transmit/Receive section of Netmaster can be used.

9. When switching from one activity to another, you will always pass through the Main Options Menu.

10. The text trap allows you to capture a conversation.

AREA: Telecommunications - The Modem

LEARNER OUTCOME: Edit and Transmit Files

LEARNER OUTCOME: E 10

PERFORMANCE/PRODUCT CHECKLIST

STUDENT ______________________________ PERFORMANCE ATTEMPT 1 2 3 4

EVALUATOR ______________________________ DATE OF ATTEMPT __________

EVALUATION SITE ____________________

CRITICAL ITEMS	ITEMS TO BE OBSERVED OR CHECKED	RATING YES/NO
1.	Send a file from the data disk?	___ ___
2.	Select from the edit data disk and correct errors?	___ ___
3.	Receive a file?	___ ___
4.	Work alone?	___ ___
5.	Return materials to proper storage areas?	___ ___
	TOTAL POINTS	5
	POINTS NEEDED	5
	SCORE	_____

PERFORMANCE/PRODUCT CHECKLIST

E 10

Edit and Transmit Files

Procedures

1. Review the check list before taking this part of the exam.
2. Ask your teacher for the edit data disk.
3. Load the edit data disk.
4. Correct all errors in the file.
5. Print a copy and hand in.
6. After you have corrected the errors, save the file under "EDIT."

Following is a copy of the file to be corrected:

The chinese cook foods' so that niether the color normitamins are lost in the pan. So, if you want to cook chinese styel make sure that you cookyour vegetables in a wok(with a touch ofoio rather than a skillett and do not over cook. With wok the cook can toss food about so that heat is evenly spread. The chinese like ehere vegatables to be crisp and very fresh. Haveyou ever tasked foods cooked in a wok?

Performance/Product Checklist Key

E 10

Transcript of Edit and Transmit Files

The Chinese cook foods so that neither the color nor vitamins are lost in the pan. So, if you want to cook Chinese style, make sure that you cook your vegetables in a Wok with a touch of oil rather than a skillet, and do not overcook. With Wok, the cook can toss food about so that heat is evenly spread. The Chinese like their vegetables to be crisp and very fresh. Have you ever tasted foods cooked in a Wok?

TELECOMMUNICATIONS

GLOSSARY E 11

ACCESS	the act of obtaining data stored in the computer system.
ACOUSTIC COUPLER	a device that connects your computer to other computers through phone lines. A type of modem in which your phone receiver fits into cups that are attached to the modem.
AD HOC SYSTEM	a temporary teleconferencing system set up for a special event or purpose; not a permanent teleconferencing facility.
ANALOG	a means of encoding or reproducing information using a continuously varying electronic signal.
ANTIOPE	the French videotext/teletext system; an acronym that roughly translates as "numerical acquisition and televisualization of images organized in pages of characters."
AUDIO CONFERENCING	teleconferencing using voice only; may include use of microphones and loudspeakers to augment telephone handsets.
ASCII	(pronounced ass' kee) acronym for American Standard Code for Information Interchange--the standard code for transmitting data from one place to another.
BANDWIDTH	given in frequencies, the capacity of an electronic transmission system. Usually, the more bandwidth a system requires, the more expensive it is to transmit. TV is a "broadband" system; a telephone voice circuit is "narrowband."
BACKUP	a copy of programs or data that is kept in case the original is accidentally destroyed.
BAUD	a unit of measurement that describes how fast information can be transmitted from one place to another. 300 baud is approximately the transmission of 300 bits per second. The word comes from

	J.M.E. Baudot, a French pioneer in printing telegraphy.
BINARY	refers to a system in which there are only two numbers--0 and 1. Every number or character is made up of a combination of 0s and 1s. This system resulted from electronic impulses being either off or on, so that there are only two signals which are combined in different ways to symbolize different characters or numbers.
BIT	a contraction of Binary DigIT--the smallest unit of storage in the computer. Each character is made up of 8 bits. A bit is either a 0 or a 1.
BOOT	bring up or begin transfer of information from disk to computer.
BPS	Bits Per Second--the same as BAUD--the rate at which data is transferred from one place to another.
BRIDGE	in teleconferencing, a device used to interconnect three or more phone lines in different locations.
BUFFER	a place to store information.
BURST TRANSMISSION	the transmission of data over a circuit at intervals that last only a fraction of a second rather than occupying the circuit continuously.
BYTE	a group of eight bits (characters).
CABLE	a bundle of insulated wires which electronic currents pass through. Cables connect computers to printers and modems to send signals back and forth.
CAPTAIN	Character and Pattern Telephone Access Information Network; the Japanese videotext system.
CARRIER WAVE	an elelectronic signal, such as that of a television station, on to which information is imposed by varying the signal.

TELECOMMUNICATIONS GLOSSARY E 11 (continued)

CARS	Community Antenna Relay Service; microwave relay systems used by cable operators to transmit cable signals.
CATV	Community Antenna Television; general term for cable TV.
CCTV	closed circuit television.
CEEFAX	teletext system of the British Broadcasting Corporation (BBC).
CELLULAR MOBILE	a mobile radio-telephone service for automobiles and other applications that divides the service area into a number of cells, each with its own transmitting and receiving antenna.
CHIP	an electronic circuit created on a tiny silicon flake upon which many gates and paths are connected. The chip can be used for memory or processing. The chip consumes little power and is compact and inexpensive. It is the key to computers, digital watches, and the electronic age.
COAXIAL CABLE	the cable used in cable TV systems, consisting of several strands surrounded by a sheath of insulation.
CODEC	coder/decoder; a device that encodes and decodes video, audio, or computer data signals for transmission and reception.
COMMON CARRIER	a company providing telecommunication services to the public under rates and regulations set by the FCC; does not originate or control the content of the messages it transmits.
COMMUNICATIONS	general term for the combination of computers with communication and information technology.
COMSAT	Communication Satellite Corporation; government-chartered company that provides satellite communication services and represents the United States in Intelsat.

TELECOMMUNICATIONS GLOSSARY E 11 (continued)

CONNECT TIME	the amount of time that your computer is connected to another computer, measured from the time you sign on until you sign off.
CRASH	an emergency. When your system becomes inoperable for one reason or another and what you have done disappears forever. Crashes can be caused by system malfunctions or by the operator.
CROSS POLARIZATION	a technique for doubling the number of TV signals or other transmissions a satellite can carry.
C-SPAN	Cable Satellite Public Affairs Network; provides coverage of U.S. House of Representatives.
CURSOR	a spot of light on a display screen that indicates the point in the text at which the operator is working.
DATA	a collection of members and/or words to be processed.
DBS	Direct Broadcast Satellite; a television broadcasting system that beams programming directly from a satellite to small rooftop antennas on subscribers' homes.
DIGITAL	representing or encoding information by means of separate, discrete measurements or bits of data.
DIGITAL TRANSMISSION	the transmission of sound, images, or data in the form of binary data or bits, rather than as modulations on a carrier wave.
DISH	a parabolic or dish-shaped antenna used for sending or receiving signals to communication satellites.
DISK DRIVE	a device which holds, rotates, and physically accesses a diskette.
DISKETTE	a thin, flexible plotter, similar to a 45 rpm record, coated with magnetic material, and used to store information.

TELECOMMUNICATIONS GLOSSARY E 11 (continued)

DOCUMENT	a business communication that contains information.
DOMSAT	Domestic Communication Satellite.
DOS	Disk Operating System--program which facilitates use of the drive for storage and retrieval of programming and information.
DOWNLINK	an earth station that receives transmissions from a communication satellite.
DOWNLOAD	the ability to save material from an on-line session by storing it on a diskette or printing it on a printer. Downing refers to data coming "down" the phone line to your computer.
DUMB TERMINAL	a piece of hardware that allows you to send and receive data, but does not allow you to do anything else. It has no memory, does not process data, does not compute. It must be connected to a computer to do anything.
EARTH STATION	the antenna and other equipment needed on the ground to transmit or receive communication satellite signals; may be a downlink, an uplink, or both.
ECOM	Electronic Computer-Originated Mail; system belonging to U.S. Postal Service.
EDITOR	a program that allows information to be altered without having to retype all of the information; lets you create a document and edit the text buffer or a disk file.

TELECOMMUNICATIONS GLOSSARY E 11 (continued)

EFT	Electronic Funds Transfer; banking and financial systems that use computers to complete transactions electronically rather than by transfer of paper documents.
ELECTRONIC MAIL	messages sent from one person to another by electronic means rather than by paper
ENHANCED SERVICES	a category of telecommunication services established by the FCC in Computer Inquiry II in which the transmitted information is significantly changed or restructured by computers, not merely routed by them; not regulated as common carriers.
EXPANDABLE	indicates that a computer can be made to do additional things by adding more devices to it. A computer is expandable if it allows you to connect a printer, add extra memory, add more disk drives.
FACSIMILE	electronic transmission of printed material.
FAX	Facsimile Transmission; a system that transmits printed pictures or documents electronically.
FILTER	in telecommunications, a device on a transmission line that allows some signals to pass while stopping or trapping others.
FOOTPRINT	the portion of the earth's surface covered by the signal from a communication satellite.
FRAME GRABBER	a device that can identify, store, and display a single frame of a television picture out of a television signal.
FREEZE FRAME	also called "slow scan," a type of television transmission used in teleconferencing that permits the display of still pictures only and requires several seconds for each image to be sent.

TELECOMMUNICATIONS GLOSSARY E 11 (continued)

FREQUENCY	the number of cycles per second of an electromagnetic transmission.
FULL DUPLEX	indicates that data are being transmitted in two directions at the same time. You are sending data at the same time that the person you are communicating with is sending data.
FULL-MOTION VIDEO	in videoconferencing, the use of video links that provide normal, uninterrupted live pictures.
GALAXY	name of communication satellites owned by Hughes Aircraft Corporation.
HALF DUPLEX	indicates that data are being sent in only one direction at a time. You send your data; then the other person sends data.
HARD COPY	a printout on paper.
HERTZ	"cycles per second," a measurement of the frequency of an electromagnetic transmission or signal.
HOLOGRAPHY	a method of storing and projecting a three-dimensional image using lasers.
INFORMATION PROCESSING	the coordination of people, equipment, and procedures to handle information, including word and data processing; the distribution/communication, storage, and retrieval of information.
INPUT	facts or data that are entered into an information processing system.
INTEGRATED	built into; a combination of.
INTERACTIVE	back and forth. An interactive program is one that works with you and allows changes without requiring re-programming.
INTERFACE	a device that acts as an interpreter and allows the computer to communicate with a peripheral.

TELECOMMUNICATIONS GLOSSARY E 11 (continued)

INTELLIGENT TERMINAL	a computer or communications terminal with the ability to process data on its own, without sending that data to a main computer.
INTELSAT	International Telecommunications Satellite Consortium; a group of more than 100 nations organized in 1964 to cooperate in the operation of communication satellites.
KHZ	Kilohertz.
LAN	Local Area Network; equipment used to link together various kinds of electronic office equipment, including computers, word processors, and facsimile machines.
LASER	light amplification by stimulated emission of radiation; a device that emits an extremely narrow beam of pure, high-energy light.
LCD	Liquid Crystal Display.
LED	Light-Emitting Diode.
LO	Location Origination.
LOG	to connect something to something else. You log one disk drive to another or one system to another.
LOG IN	to enter whatever information is necessary to connect you to another system.
LOG OFF	to enter whatever information is necessary to disconnect you from another system.
LOG ON	same as "Log In."
LOG OUT	same as "Log Off."
MB	megabytes; a million bytes

TELECOMMUNICATIONS GLOSSARY E 11 (continued)

MENU	a list of tasks or functions displayed on a computer screen to guide the operator with selection procedures throughout the entry and editing of text
MHZ	megahertz.
MICROCIRCUIT	another term for integrated circuit.
MICROFICHE	a small sheet of film on which reduced images are arranged in rows and columns, used in records storage and filing.
MICROFILM	a continuous roll of film containing reduced images of graphic or textual material, used for records storage and filing.
MICROWAVE	high frequency radio waves used for telecommunications transmission.
MODE	the condition or method of operation. Chat mode, for example, is a situation in which you can talk back and forth with another person.
MODEM	acronym for MOdulator-DEmodulator. A device that allows you to connect your computer to other computers through telephone lines.
MODULATION	modifying an electromagnetic transmission in a way that allows it to carry information.
MULTIPLEXING	using a transmission channel to carry two or more signals at the same time.
NETMASTER	software used with the Networker.
NETWORKER	a modem.
OFFLINE	when your computer is working alone and not connected to any other system.
ONLINE	when your computer is connected to another system.
PACKET SWITCHING	a method of sending data from one point to another in groups of bits. Each packet is sent separately. Telenet and

TELECOMMUNICATIONS GLOSSARY E 11 (continued)

	Tymnet are packetswitching systems that transfer your data to another system and sends theirs to you.
PARALLEL TRANSMISSION	when data are sent from your computer to somewhere else one character at a time. Eight bits travel side by side from your computer to the receiver. Transmission to the printer is usually parallel. Transmission through phone lines is not.
PROGRAMMABLE FUNCTION KEYS	keys that can be made to issue a series of commands with a single key stroke. Keys can be programmed to dial CompuServe, type in your User ID and Password all with one stroke of the key.
PROMPT	the symbol that accompanies the cursor and tells you the computer is waiting for your instructions.
REAL TIME	communications that take place in real time are those that allow people to communicate directly with each other through their computers. There is no message leaving, delay for transmission, or such. Chat mode is real time as are several other options.
REMOTE	devices that are separated by space but can still work together through communications links.
REMOTE ACCESS	the ability to send and receive data through communications lines to and from distant computers.
RESOLUTION	the amount of detail that can be seen in an image; the number of horizontal lines of picture elements the screen displays.
ROM	(read only memory) the permanent memory of a computer.
SATCOM	the series of communication satellites built by RCA.
SCAN	to examine briefly, and in order, items listed. Scan is often a bulletin board option which allows you to decide which entries are interesting enough to read.

TELECOMMUNICATIONS GLOSSARY E 11 (continued)

SBS	Satellite Business Systems; first company to launch a communication satellite dedicated solely to business data communications.
SCRAMBLER	in cable and satellite television transmission, a device that alters a program signal electronically so that it can be seen only by persons who have paid for proper decoding devices.
SERIAL TRANSMISSION	the sending of one bit of information after another in a line. Transmissions on phone lines must be serial and require a serial port or card to translate your data into that form.
SIGN OFF	same as "Log Off."
SIGN ON	same as "Log On."
SMART TERMINAL	a terminal used with a computer or telecommunications system that has some built in data processing capabilities but not to the extent they may be found in an INTELLIGENT TERMINAL.
SOFT COPY	output that is nt in printed form, such as a display on a video screen or audible output.
SOFTWARE	the operating instructions or programming of a computer.
TELECOMMUNICATION	transmission of data from one point to another by communication lines.
TELECOMMUTING	the ability to work at home on a computer rather than travelling to an office to do the work. Usually the work is sent to the office via network.
TELECONFERENCING	electronic meetings; using telecommunication technology to hold meetings or bring individuals into gatherings while remaining in different locations.
TELETEX	the system that allows a person to retrieve data on a home television set, but does not allow that person to input data.

TELESLATOR	a low-powered, remote television broadcasting station that picks up the weak signal of a distant full-power station, changes it to a different channel, amplifies it, and rebroadcasts it to nearby viewers.
TERMINAL	a device through which data may be entered or received, usually equipped with a plyboard and a display device.
TEXT TRAP	allows you to capture a conversation.
VIDEO CONFERENCING	teleconferencing that uses video links as well as audio.
VIDEOTEX OR VIDEOTEXT	interactive data retrieval and communication system that connects a large computer center with a home computer user through telephone lines. Both user and computer can input data.
VOICE MAIL	a verbal telephone message stored by computer for later playback.
WORD PROCESSING	people making better use of a managed system of information through improved procedures and modern equipment; creating and altering written documents, using the computer to generate text, move it, delete, insert, etc.

TELECOMMUNICATIONS

EXAMPLES OF DATA SERVICES - DATA BASES

E 12

COMPUSERV

Consumer Infomation Service
5000 Arlington Center Boulevard
P.0. Box 20212
Columbus, OH 43220

800/848-8199

DELPHI

General Videotex Corporation
3 Balckstone Street
Cambridge, MA 02139

617/491-3393

DOW JONES
NEW/RETRIEVAL

Dow Jones and Company, Inc.
P.O. Box 300
Princeton, NJ 08540

800/257-5114

E-COM

Contact your local post office.

EDNET

National Education Corporation
315 Post Road
Westport, CT 06880

203/227-0891

DATA SERVICES - DATA BASES (continued)

ELECTRONIC UNIVERSITY

Telelearning Systems, Inc.
505 Beach Street
San Francisco, CA 94133

415/928-2800

THE INFORMATION BANK

Chicago - 312/236-6800

MCI MAIL

800/MCI-2255

PLATO

Control Data Corporation
Minneapolis, MN

800/328-1109

THE SOURCE

Source Telecomputing Corporation
1616 Anderson Road
McLean, VA 22102

VOSCAN

A Vocational Education Information Exchange

217/786-6737

WESTERN UNION EASYLINK

800/336-3797 (108)

IDENTIFY AND USE INTEGRATED SOFTWARE

INTEGRATED SOFTWARE

PREFACE

Integrated software is a part of the information processing unit. It will combine the generic computer operations of word processing, data base, spreadsheets, graphics, and telecommunications into an integrated software package or system.

OUTLINE FOR INTEGRATED SOFTWARE PACKAGE

F	Integrated Software Preface
F 1	Identify Integrated Software Concepts and Terms
F 2	Identify and Complete the Procedures for Loading an Integrated Software Package and Selecting Options from the Menu
F 3	Select the Data Base Module and Create a Data Base File
F 4	Select the Spreadsheet Module and Create a Spreadsheet File
F 5	Select the Graphics Module and Create a Graph of Existing Data
F 6	Select the Word Processing Module and Create a Final Report by Integrating Information from Data Base/Spreadsheet Files
F 7	Evaluate an Integrated Software Package

INFORMATION PROCESSING

Area:	Identify and Use Integrated Software
Learner Outcome F 1:	Identify Integrated Software Concepts and Terms
Purpose:	To use an integrated software package or system, you must be familiar with the fundamental concepts and terms related to its use. In this learner outcome, you will learn these concepts and terms.
Objective:	Given a written examination, you will identify and define integrated software concepts and terms. To master this learner outcome, you must score at least 9 out of 10 points, or 90% for mastery.

Estimated Class Time: 2 hrs.

Learner Outcome F 1

Identify Integrated Software Concepts and Terms

LEARNING STEPS

READ: Information Sheet F 1.1, "Integrated Software Concepts and Terms."

READ: Information on integrated software concepts and terms in one or more of the resources from your instructor.

COMPLETE: Activity Sheet F 1.2, "Integrated Software Concepts and Terms."

REVIEW: Information Sheet F 1.3, "Integrated Software Glossary."

COMPLETE: Activity Sheet F 1.4, "Integrated Software Terms."

COMPLETE: Written Exam F 1, "Integrated Software Concepts and Terms," to demonstrate mastery of this task. Contact your instructor.

RESOURCES

F 1

AppleWorks Reference Manual, Apple Computer Inc., Cupertino, CA, 1983.

Desouteis, Edouard J., Symphony for the IBM PC and Compatible Computers, Wm. C. Brown Publishers, Dubuque, IA, 1985.

Harrison, Bill, An Introduction: Framework, Ashton-Tate Publishing Group, Culver City, CA, 1984.

Integrated Software User's Manual (See instructor).

Price, Wilson T., Computers and Application Software: An Introduction, Holt, Rinehart, and Winston, Chicago, IL, 1985.

Wade, Howard H., The Perfect Series Documentation. (Filer, Writer, Speller, and Calc), Columbia Data Products, Inc., 1983.

MAGAZINE SOURCES

Business Computer Systems

Business Computers

Computer Decisions

Information Week

Information World

Lotus

Modern Office Technology

Office Systems 85

PC Week

PC World

Personal Computing

Systems & Software

INFORMATION SHEET

F 1.1

Integrated Software Concepts and Terms

WHAT IS INTEGRATED SOFTWARE?

Integrated software combines several functions such as word processing, data base management, electronic spreadsheets, graphics, and communications into one package. A single set of data could be used to incorporate all of the functions into one report.

The goal of an integrated package is to create one scheme of hardware, software, and procedures. These components work together as a cohesive whole to process information. A single set of data could then be used to produce a report that would use part or all of the functions. For example, a spreadsheet could be prepared for the actual budget figures for a year and could be compared to the projected budget figures for a year. Using these same figures, a report could be generated with the word processing component, and a graph of the comparison could be easily included.

There are three types of integrated software. The single, multifunctional program will perform most of the functions of word processing, data base, spreadsheet, telecommunications, and graphics. Usually, the multifunctional program requires a large amount of memory. The more functions the program will perform, the larger the memory requirement. Some examples of multifunctional programs are Symphony, Jazz, Enable, Ensemble, Aura, and Framework.

The second type of integrated software is the family software that is sometimes referred to as compatible or modular software. With this type of software, each module is usually on a separate disk and may be sold separately. The same functions can be performed with a family software program; however, for each module change, the correct disk must be inserted to load the program. For example, the data used in one spreadsheet or data base can be used by some of the other modules. The word processing module could be used to generate a report, and the graphics module could be used to generate a graph within the report. Some examples of the family or compatible series software are the PFS series, MicroPro's Word series, Perfect series, and Smart.

The third type of integrated software is the program that provides an operating environment that will allow several different programs to work together. These may not necessarily be programs from the same software company. These programs allow for the selection of the functions and selection of data from another data base or spreadsheet which can be used to generate a report with graphics or can be sent to another location using a communications module. Some examples of this type of integrated program are TopView, Integrator, Windows, VisiOn, DesQ, and PC Desk.

Some programs are easier to use than others. The three types of integrated programs are usually menu driven. The user selects the desired function from the menu. The program leads the user through the procedures to produce the desired results.

WHAT ARE THE COMPONENTS OF AN INTEGRATED SYSTEM?

1. An electronic spreadsheet module is a feature included in most, if not all, integrated software applications. The spreadsheet resembles an accountant's worksheet and is divided into many cells that result from the intersection of columns and rows. The spreadsheet may be used to prepare budgets, financial statements, sales forecasts, and loan amortization schedules.

2. A data base module is an integrated, organized collection of data that allows for retrieval and use of the data by anyone needing it. Examples might include the electronic storage of files, such as information found in telephone books, school records, encyclopedias or charge account records.

3. A business graphics module presents information as pictorial screen displays on a computer monitor or as hardcopy in the form of paper, transparencies, and 35 mm film. Bar, stacked bar, line graphs, and pie graphs are the most common business graphics.

4. A word processing module allows for the electronic modification and revision of typed copy. Spelling check, thesaurus, underscoring, wrap-around, deletion, rearrangement, and choice of print size are but a few features of this component.

INFORMATION SHEET F 1.1 (continued)

5. A telecommunications module provides the opportunity to transmit information quickly and easily. Through the use of modems, data lines, and telephone lines the user has the opportunity to communicate with another computer system.

6. A time management module, available in some integrated packages, uses the calendar format. This feature allows the user to plan, schedule, and confirm appointments, travel arrangements, and meetings.

7. An outlining module, available in some integrated packages, allows the user to organize and plan a document.

WHY USE AN INTEGRATED SOFTWARE PACKAGE? Some of the advantages of using an integrated package are:

1. Combination of Programs: Modules such as word processing, spreadsheet, data base, graphics, telecommunications, and time management can be combined into one software package.

2. Information Sharing: Data that is used in one module of the integrated package can be used as data in another module; for example, data used in a spreadsheet module can be used to make a graphics presentation.

3. Compatible User Interface: The modules in an integrated software package share a common set of commands; that is, the command structure used in a spreadsheet module would be similar to the command structure used in a data base or word processing module.

4. Use of Windows: Several modules or several parts of files can be displayed on the screen simultaneously.

WHY WOULD YOU NOT WANT TO USE AN INTEGRATED PACKAGE? Some disadvantages of using integrated software might include:

1. Memory Requirement: A large amount of memory is required for the program which leaves little storage room for data. This can be overcome by upgrading the microcomputer system.

2. Loss of Advanced Features: A user who is accustomed to a powerful individual package might find that some advanced features are lost when combining the modules of word processing, data base, spreadsheet, and graphics into the same integrated package.

ACTIVITY SHEET

F 1.2

Integrated Software Concepts and Terms

The purpose of this activity is to determine whether or not you have understood integrated software concepts and terms.

Answer each of the following questions:

1. What is an integrated software package?

____

____

____

____

List and describe each of the seven (7) modules or parts of an integrated software package:

2. ______________________________

3. ______________________________

4. ______________________________

5. ______________________________

6. ______________________________

7. ______________________________

8. ______________________________

Describe the three (3) types of integrated software:

9. Single, multifunctional program

____

10. Compatible or modular software

____

ACTIVITY SHEET F 1.2 (continued)

11. Operating environment program

____

List two (2) advantages of using an integrated software program:

12. ______________________________

13. ______________________________

List two (2) disadvantages of using an integrated software program:

14. ______________________________

15. ______________________________

Activity Sheet Key

F 1.2

Integrated Software Concepts and Terms

Answer each of the following questions:

1. What is an integrated software package?

   Combination of word processing, data base, spreadsheet, graphics, and telecommunications (or several of above) into one package.

   List and describe each of the seven (7) modules or parts of an integrated software package:

2. electronic spreadsheet
3. data base
4. word processing
5. graphics
6. telecommunications
7. time management
8. outlining

   Describe the three (3) types of integrated software:

9. Single, multifunctional program

   several modules contained in one program

10. Compatible or modular software

    each module on separate disk

11. Operating environment program

    a program that provides an operating environment that allows several different programs to work together

Activity Sheet Key F 1.2 (continued)

List two (2) advantages of using an integrated software program:

12. combination of programs

13. information sharing

List two (2) disadvantages of using an integrated software program:

14. memory requirement

15. loss of advanced features

INFORMATION SHEET

F 1.3

Integrated Software Glossary

CLIPBOARD	in an integrated package, an area that temporarily holds data from one module that is to be pasted into another module
COMMUNICATIONS	see telecommunications
CUT AND PASTE	the concept of removing part of one developed application and placing it into another; e.g., cut out a portion of a spreadsheet and produce a graph, then paste it into a report developed in the word processing function
DATA BASE	the component of an integrated software package that allows for management of stored records
DESKTOP	that area of memory that contains files or parts of files with which the user is currently working
DIF	data interchange format. Files which are formatted in a standardized way so that they may be integrated
FAMILY OF SOFTWARE	software packages that produce data that may be integrated into another package in the same series; e.g., PFS series and PERFECT series
GRAPHICS	the component of an integrated software package that allows for the production of a graph
HOT VIEW	the automatic updating of information in integrated systems
ICON	a picture on a video screen that is used to represent a function

INFORMATION SHEET GLOSSARY F 1.3 (continued)

INTEGRATED SOFTWARE	a program(s) that allow(s) for information to be shared among functions such as word processing, data base management, spreadsheets, graphics, and communications
INTEGRATOR	a program that is used to integrate existing packages, also referred to as an operating environment or top controller
LINK	the automatic updating of all versions of a given portion of text when it is changed in any one place
MENU	a list of options displayed on a screen or window from which the user may select. Many integrated packages have "pulldown" menus that show additional choices based on the first selection
MODULE	a program or part of a program that executes a given function
MOUSE	an electronic device that, as it is rolled on a desk top, allows the user to select from menus or, point to and act on icons displayed on a screen
OUTLINING	a feature of some integrated packages that allows the user to organize and plan work that is to be done. The system automatically updates the sequence of items as changes are made
QUERY	to select information from the data base portion of an integrated package
SPREADSHEET	the component of an integrated software package that allows for the manipulation of data in a row and column worksheet format

INFORMATION SHEET GLOSSARY F 1.3 (continued)

TELECOMMUNICATIONS	the component of an integrated software package that allows for the electronic transmission of data and documents from one place to another using modems and phone lines
TIME MANAGEMENT	the component of an integrated software package that allows for scheduling of appointments and the maintenance of an electronic calendar
USER INTERFACE	the means by which a user invokes functions in a software package; possible methods include the use of menus, windows, commands, icons, and voice
WINDOW	a portion of a video display screen that allows for viewing of certain information while other information is also shown
WORD PROCESSING	the portion of an integrated software package that allows for entry, editing, and manipulating of text materials such as documents and reports
ZOOM	a feature that allows the user to highlight a specific function or record by "zooming" in on it

ACTIVITY SHEET

F 1.4

Integrated Software Terms

You are to read each of the statements. Locate the term at the bottom that matches the definition or statement. On a separate sheet of paper place the letter of the term found at the bottom next to the number of the statement found below.

1. An electronic device that, as it is rolled on a desk top, allows the user to select from menus or to point and act on icons displayed on the screen.
2. The component of an integrated software package that allows for management of stored records.
3. The component of an integrated software package that allows for scheduling of appointments and maintenance of an electronic calendar.
4. A portion of a video display screen that allows for the viewing of certain information while other information is also on the screen.
5. The portion of an integrated software package that allows for entry, editing, and manipulating text materials such as documents and reports.
6. To select information from the data base portion of an integrated package.
7. A picture on a video screen that is used to represent a function.
8. A list of options displayed on a screen or window from which the user may select.
9. The component of an integrated software package that allows for the manipulation of data in a row and column worksheet format.
10. The automatic updating of information on integrated systems.

a. data base
b. spreadsheet
c. icon
d. hot view
e. menu
f. mouse
g. query
h. time management
i. window
j. word processing

Activity Sheet Key

F 1.4

Integrated Software Terms

You are to read each of the statements. Locate the term at the bottom that matches the definition or statement. On a separate sheet of paper place the letter of the term found at the bottom next to the number of statement found below.

1. An electronic device that, as it is rolled on a desk top, allows the user to select from menus or to point and act on icons displayed on the screen.

   F. mouse

2. The component of an integrated software package that allows for management of stored records.

   A. data base

3. The component of an integrated software package that allows for scheduling of appointments and maintenance of an electronic calendar.

   H. time management

4. A portion of a video display screen that allows for the viewing of certain information while other information is also on the screen.

   I. window

5. The portion of an integrated software package that allows for entry, editing, and manipulating text materials such as documents and reports.

   J. word processing

6. To select information from the data base portion of an integrated package.

   G. query

7. A picture on a video screen that is used to represent a function.

   C. icon

8. A list of options displayed on a screen or window from which the user may select.

   E. menu

9. The component of an integrated software package that allows for the manipulation of data in a row and column worksheet format.

   B. spreadsheet

10. The automatic updating of information on integrated systems.

    D. hot view

WRITTEN EXAM

F 1

Integrated Software Concepts and Terms

The purpose of this exam is to determine whether or not you have understood the information on integrated software concepts and terms.

Each of the questions or incomplete statements below is followed by several words or phrases. Choose the one that best answers the question or completes the statement correctly. Place the letter associated with that choice (a, b, c, or d) in the numbered blank space on the Answer Sheet. DO NOT WRITE ON THIS TEST! To master this exam, you must answer 9 out of 10 items correctly, or 90%.

WRITTEN EXAM

F 1

Integrated Software Concepts and Terms

Write your answer on an answer sheet.

1. Which of the following functions would probably not be represented in an integrated package?

   a. business graphics
   b. BASIC programming
   c. data base management
   d. word processing

2. Which of the following is not an advantage of using integrated software?

   a. uses less memory than separate programs
   b. consistent command structure
   c. ability to integrate data easily
   d. use of windows

3. Which of the following is not an example of integrated software?

   a. multifunctional package
   b. user-programmed functions
   c. family or series of programs
   d. operating environment or top controller

4. Most integrated software packages are

   a. icon-driven
   b. voice-driven
   c. menu-driven
   d. command-driven

5. The component of an integrated software package that allows for manipulation of data in rows and columns for financial applications is

   a. data base
   b. spreadsheet
   c. word processing
   d. graphics

WRITTEN EXAM F 1 (continued)

6. A portion of a display screen that may show a certain application while another is also displayed is a/an

   a. window
   b. menu
   c. icon
   d. graphic

7. Which of the following is an example of a family or series of compatible software?

   a. framework
   b. symphony
   c. PFS
   d. top view

8. What does DIF stand for?

   a. Differential Integrator Formula
   b. Data Identification Facilitator
   c. Data Identification Format
   d. Data Interchange Format

9. In working with an integrated package, computer memory might be called

   a. a menu or icon
   b. a module or link
   c. a desktop or clipboard
   d. a window or graphic

10. The operation of removing data from one part of an integrated package and placing it into another part is called

    a. delete and add
    b. cut and paste
    c. move and insert
    d. remove and stick

Written Exam Key

F 1

Integrated Software Concepts and Terms

1. Which of the following functions would probably not be represented in an integrated package?

   b. BASIC programming

2. Which of the following is not an advantage of using integrated software?

   a. uses less memory than separate programs

3. Which of the following is not an example of integrated software?

   b. user-programmed functions

4. Most integrated software packages are

   c. menu-driven

5. The component of an integrated software package that allows for manipulation of data in rows and columns for financial applications is

   b. spreadsheet

6. A portion of a display screen that may show a certain application while another is also displayed is a

   a. window

7. Which of the following is an example of a family or series of compatible software?

   c. PFS

8. What does DIF stand for?

   d. Data Interchange Format

9. In working with an integrated package, computer memory might be called

   c. a desk top or clipboard

Written Exam F 1 Key (Continued)

10. The operation of removing data from one part of an integrated package and placing it into another part is called

    b. cut and paste

INFORMATION PROCESSING

Area: Identify and Use Integrated Software

Learner Outcome F 2: Identify and Complete the Procedures for Loading an Integrated Software Package and Selecting Options from the Menu

Purpose: The first step in using an integrated software package is to load the system disk so that an option can be selected from the main menu.

Objective: Given a microcomputer system, an integrated software package, and documentation, identify basic system start-up procedures and perform start-up functions on your system. To master this learner outcome, you must score 7 out of 7 points or 100% on a performance/product checklist and 5 out of 5 points or 100% on a written exam.

Estimated Class Time: 2 hrs.

Learner Outcome F 2

Identify and Complete the Procedures for Loading an Integrated Software Package and Selecting Options from the Menu

LEARNING STEPS

READ: Information Sheet F 2.1, "Integrated Software Package Start-Up Procedures."

READ: Information about loading your integrated software package in your system documentation. See your instructor.

COMPLETE: Activity Sheet F 2.2, "Integrated Software Package Start-Up Procedures."

COMPLETE: Performance/Product Checklist F 2, "Identify and Complete the Procedures for Loading an Integrated Software Package and Selecting Options from the Menu."

COMPLETE: Written Exam F 2, "Identify and Complete the Procedures for Loading an Integrated Software Package and Selecting Options from the Menu." Contact your instructor.

RESOURCES

Your integrated software package documentation.

INFORMATION SHEET

F 2.1

Integrated Software Package Start-up Procedures

Before using your integrated software package, you need to identify basic system start-up concepts that can be applied to your system.

1. WHAT ARE START-UP PROCEDURES?

   Generally speaking, to start up a system means to load the software package from disk into the memory of your computer. This procedure is commonly called "booting the system." See your instructor or operator's manual for specific instructions on booting.

2. WHAT SHOULD YOU KNOW BEFORE BOOTING AN INTEGRATED PACKAGE?

   You should check the user guide for your software package to determine the system requirements. You should know how much memory (RAM) is required to run the package, how many disk drives are required, and whether or not you will need a printer. Most truly integrated software packages require more memory than other programs. Usually, two disk drives are required for an integrated package. Check with your instructor to find out how much memory is installed in your computer.

   You should also check your documentation for formatting and creating a data disk. Refer to Data Base Module Information Sheet F 3.1 for more information about formatting.

3. WHAT HAPPENS WHEN THE SYSTEM DISK IS LOADED?

   One of two things usually happens when the system is started. A prompt such as A> or a menu of choices appears. If a prompt appears, the operating system is waiting for a command. For example, to start an integrated package called Framework, type the command FW, then hit return.

```
A> FW
```

INFORMATION SHEET F 2.1 (continued)

Menus for various functions will appear on the screen. If when the system is loaded a menu is displayed on the screen, simply move the cursor to a particular function and then hit return to activate that module. For example, an integrated package called Appleworks would display the following menu:

```
Disk:  Drive 1                  MAIN MENU
----------------------------------------------------------

Main Menu

1.   Add files to the desktop.
2.   Work with one of the files on the desktop.
3.   Save desktop files to disk.
4.   Remove files from the desktop.
5.   Other activities.
6.   Quit.
----------------------------------------------------------

Type number, or use arrows, then press RETURN.
```

4. WHAT DOES THE USER DO TO CHOOSE A FUNCTION?

Most integrated software is completely menu-driven, which makes it easier to use. Often, there are pull-down menus that allow the user to make subsequent selections after the first selection. By going through these menus and sub-menus, a user can quickly and easily change from module to module or act upon data in a particular module. For example, to start creating a data base of information, the user would choose the data base option from the menu. There would then be another menu for selecting functions from within the data base management module.

After completing and saving the data base, the user would return to the main menu to select the spreadsheet function. Once in the spreadsheet, data could be selected from the data base and loaded into the spreadsheet. Then, the user could continue to build integrated applications in this manner, selecting from menus. The escape key is sometimes used to switch from menu to menu or to get out of a certain function.

INFORMATION SHEET F 2.1 (continued)

In the learning guides that follow for this duty, use menus to select and use the various modules in an integrated package. It is important to learn how to "navigate" in the system before actually creating the data base and spreadsheet that will be used in conjunction with the other components to create a final compound report.

ACTIVITY SHEET

F 2.2

Integrated Software Package Start-Up Procedures

The purpose of this activity is to determine whether or not you have understood how to use the integrated software packages.

Complete the following statements:

1. To start up a system means to load the software package from _________ into the _____________ of the computer.

2. You should know how much __________________ is required to run the package.

3. When the system disk is loaded, a prompt or a _______________ will appear on the screen.

4. If a prompt appears, the operating system is waiting for a ____________ to be typed.

5. If a menu appears, you will make a menu selection by following the instructions on the screen, and then you will press _________________________.

6. Often, there are ________________ menus which allow the user to make subsequent selections. By going through these menus and ______________________, a user can quickly and easily change from module to module or act upon data.

Answer the following questions about your system:

7. What is the name of your integrated software package?

   ____

8. How much RAM is required to run your package?

   ____

   How much RAM do you have? ____________________________________

9. How do you select a given component (module) in your integrated package?

   ____

ACTIVITY SHEET F 2.2 (continued)

10. How do you choose a function from within a given component (module)?

Do the following on your system:

11. Write down the procedure for booting the integrated software package. Boot the integrated software package.

12. Write down the procedure for entering the spreadsheet component (module). Enter the spreadsheet (module). Return to the main menu.

Activity Sheet Key

F 2.2

Integrated Software Package Start-Up Procedures

The purpose of this activity is to determine whether or not you have understood how to use the integrated software packages.

Complete the following statements:

1. To start up a system means to load the software package from disk into the memory of the computer.

2. You should know how much memory (RAM) is required to run the package.

3. When the sytem disk is loaded, a prompt or a menu will appear on the screen.

4. If a prompt appears, the operating system is waiting for a command to be typed.

5. If a menu appears, you will make a menu selection by following the instructions on the screen, and then you will press return (enter).

6.-12. Consult your software manual.

AREA:	Identify and Use Integrated Software
LEARNER OUTCOME:	Identify and Complete the Procedures for Loading an Integrated Software Package and Selecting Options from the Menu
LEARNER OUTCOME:	F 2

PERFORMANCE/PRODUCT CHECKLIST

STUDENT ______________________________ PERFORMANCE ATTEMPT 1 2 3 4

EVALUATOR ____________________________ DATE ______________________

EVALUATION SITE ____________________

TERMINAL PERFORMANCE OBJECTIVE:

Given a microcomputer system and an integrated software package and documentation, you will identify basic system start-up procedures and perform start-up functions on your system. To master this learner outcome, you must score 7 out of 7, or 100% on a performance/product checklist.

DIRECTIONS TO THE STUDENT:

Before attempting this learner outcome for mastery, carefully review this checklist. You will be evaluated on the basis of this checklist. When you feel you are ready for evaluation, contact your instructor. You must complete your performance within 15 minutes and must score at least 100% for mastery.

DIRECTIONS TO THE EVALUATOR:

The student will contact you when ready for evaluation. The student must complete the performance within 15 minutes and score 100% on a performance checklist.

PERFORMANCE/PRODUCT CHECKLIST

Identify and Complete the Procedures for Loading an Integrated Software Package and Selecting Options from the Menu

F 2

CRITICAL ITEMS	ITEMS TO BE OBSERVED OR CHECKED	RATING YES/NO
*1.	Inserting integrated software package disk, powering up computer, and booting the system (Note: sequence may vary).	___ ___
*2.	Formatting a data disk (this disk will be used later; sequence may vary).	___ ___
*3.	Identifying the name of the software package.	___ ___
*4.	Entering the data base component (module). Returning to the main menu.	___ ___
*5.	Entering the spreadsheet component (module). Returning to the main menu.	___ ___
*6.	Entering the word processing component (module). Returning to the main menu.	___ ___
*7.	Entering one of the integrated software program's modules and going down to the next level by choosing from a pull-down or sub-menu. Returning to the main menu.	___ ___

TOTAL POINTS NEEDED 7

POINTS NEEDED 7

SCORE ______

WRITTEN EXAM

F 2

Identify and Complete the Procedures for Loading an Integrated Software Package and Selecting Options From the Menu

The purpose of this exam is to determine whether or not you have understood the information on identifying and using integrated software.

Each of the questions or incomplete statements below is followed by several words or phrases. Choose the one that best answers the question or completes the statement correctly. Place the letter associated with that choice (A, B, C, or D) in the numbered blank space on the Answer Sheet. DO NOT WRITE ON THIS TEST! To master this exam, you must answer 5 out of 5, items correctly, or 100%.

WRITTEN EXAM

F 2

Identify and Complete the Procedures for Loading an Integrated Software Package and Selecting Options From the Menu

1. When using an integrated software package, the user can switch from module to module by using a

   A. prompt
   B. menu
   C. command
   D. graphic

2. The term "booting" may refer to

   A. starting up a software program
   B. powering up a computer with a disk
   C. loading a software package into memory
   D. all of the above

3. A secondary menu that is invoked after getting into a specific module is sometimes called a

   A. pull-down menu
   B. push-up menu
   C. scroll-over menu
   D. roll-over recipe

4. In order to use a data disk to store files, it must be

   A. booted
   B. formatted
   C. copied
   D. erased

5. Moving around from one function to another in an integrated package is sometimes called

   A. menuing
   B. sailing
   C. bopping
   D. navigating

Writing Exam Key

F 2

Identify and Complete the Procedures for Loading an Integrated Software Package and Selecting Options From the Menu

1. When using an integrated software package, the user can switch from module to module by using a

   B. menu

2. The term "booting" may refer to

   D. all of the above

3. A secondary menu that is invoked after getting into a specific module is sometimes called a

   A. pull-down menu

4. In order to use a data disk to store files, it must be

   B. formatted

5. Moving around from one function to another in an integrated package is sometimes called

   D. navigating

INFORMATION PROCESSING

Area: Identify and Use Integrated Software

Learner Outcome F 3: Select the Data Base Module and Create a Data Base File

Purpose: One of the initial steps in using an integrated software package is to create a file of data that might be used in various modules of the program.

Objective: Given a microcomputer system, an integrated system software package, and documentation, you will identify and complete procedures for creating and entering a data base format, and enter and edit data using the defined screen format. To master this learner outcome, you must score 10 out of 10 points, or 100% on a performance/product checklist.

Estimated Class Time: 2 hrs.

Learner Outcome F 3

Select the Data Base Module and Create a Data Base File

LEARNING STEPS

READ:	Information Sheet F 3.1, "Integrated Software--Data Base Module Concepts, Terms, and Commands."
READ:	Information on data base concepts and terms in one or more of the resources from your instructor.
READ:	Integrated Software--Data Base Module User's Manual (See your instructor).
COMPLETE:	Activity Sheet F 3.2, "Integrated Software--Data Base Module Concepts, Terms, and Commands."
COMPLETE:	Activity Sheet F 3.3, "Integrated Software--Data Base Module Concepts, Terms, and Commands."
COMPLETE:	Performance/Product Checklist F 3, "Select the Data Base Module and Create a Data Base File."

RESOURCES

Framework Documentation, Ashton-Tate Publishing Group, Culver City, CA, 1984.

Integrated Software--Data Base Module User's Manual, (See your instructor).

Parker, Charles S., Understanding Computers and Data Processing: Today and Tomorrow, Holt, Rinehart, Winston, 1984.

PFS Series Documentation (Plan, Write, File, Report, Access Graph), Software Publishing Co., Mountain View, CA, 1985.

Shelly, Gary B., and Thomas J. Cashman, Computer Fundamentals for Information Age, Anaheim, CA, 1984.

Wolff, Terris B., Microcomputer Applications: Using Small Systems Software, Boyd, Fraser, 1985.

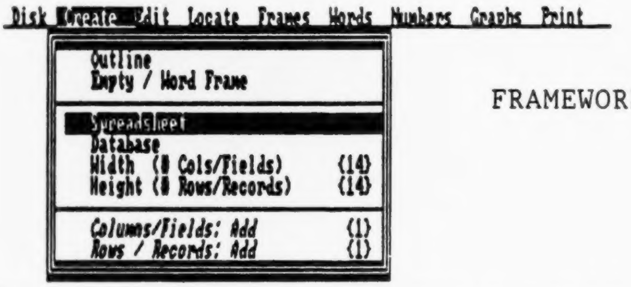
INFORMATION SHEET

F 3.1

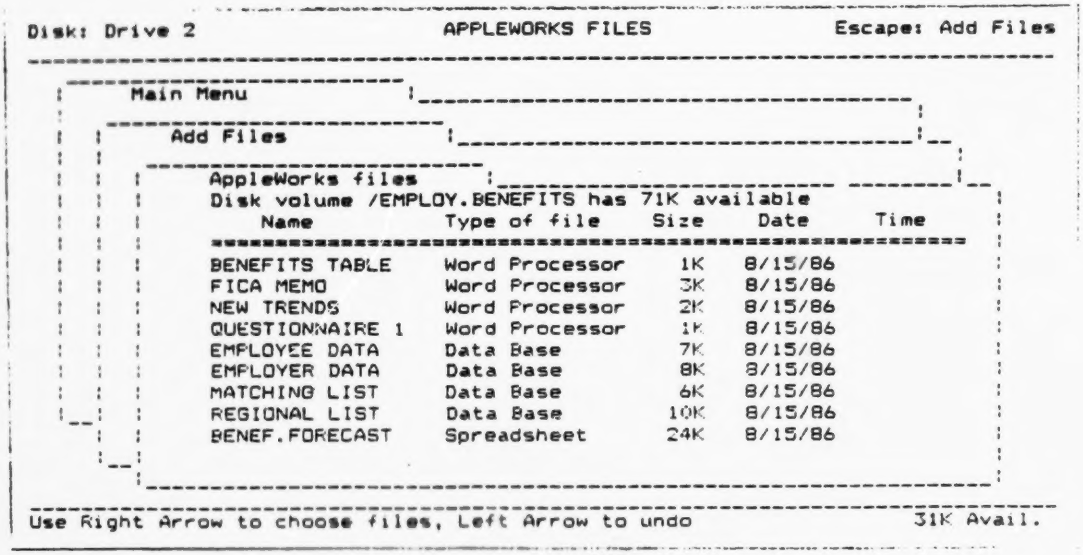
Integrated Software--Data Base Module Concepts, Terms, and Commands

NOTE*** Refer to the "Identify and Use a Data Base Management System" unit for the general concepts and terminology related to this module.

Most integrated software programs are menu driven. Examples of a menu-driven package are:


Disk Create Edit Locate Frames Words Numbers Graphs Print
Outline
Empty / Word Frame
Spreadsheet
Database
Width (# Cols/Fields) {14}
Height (# Rows/Records) {14}
Columns/Fields: Add {1}
Rows / Records: Add {1}

FRAMEWORK



```
Disk: Drive 2                  APPLEWORKS FILES               Escape: Add Files
-------------------------------------------------------------------------------
   Main Menu
      Add Files
         AppleWorks files
         Disk volume /EMPLOY.BENEFITS has 71K available
             Name             Type of file     Size     Date       Time
         ============================================================
         BENEFITS TABLE      Word Processor     1K    8/15/86
         FICA MEMO           Word Processor     3K    8/15/86
         NEW TRENDS          Word Processor     2K    8/15/86
         QUESTIONNAIRE 1     Word Processor     1K    8/15/86
         EMPLOYEE DATA       Data Base          7K    8/15/86
         EMPLOYER DATA       Data Base          8K    8/15/86
         MATCHING LIST       Data Base          6K    8/15/86
         REGIONAL LIST       Data Base         10K    8/15/86
         BENEF.FORECAST      Spreadsheet       24K    8/15/86
-------------------------------------------------------------------------------
Use Right Arrow to choose files, Left Arrow to undo                  31K Avail.
```

INFORMATION SHEET F 3.1 (continued)

1. Selecting the Data Base Module: Using the appropriate keys, the data base module is selected from the menu.

2. Naming the Data Base File: A data base module of an integrated software program stores information into a file. The file must be given a name. Check the user's manual for specific filename rules.

3. Designing the File Structure: File organization involves placing the data records into fields or attributes and determining key fields (data base module dependent). The user must indicate what each field is to be called, and, in some cases, the type of data each field will contain. This organization is called the file structure. Defining the fields of the data base is the single most important factor affecting the successful use of the data base management module with the integrated system program. Check with the instructor for field name (attribute name) rules.

4. Keying and Editing Source Data into the Data Base File: The source data is entered into the data base file. Use the appropriate keys to move from field to field, to move to a new blank record ready to receive data, and to insert and delete data while keying.

5. Exiting the Data Base Module: After all records have been keyed, the user returns to the integrated software menu by using the appropriate key.

6. Printing the Data Base Module File: A copy of the file should be printed in order to ensure accuracy of keyed data. See the user's manual for specific instructions.

ACTIVITY SHEET

F 3.2

Integrated Software--Data Base Module Concepts, Terms, and Commands

The purpose of this activity is to determine whether or not you have understood how to select and create a data base file.

Using the integrated software user's manual, complete the following:

1. **TO NAME THE DATA BASE FILE:**

   Maximum length of filename ____________________

   Command ____________________

2. **TO DESIGN AND KEY THE FILE STRUCTURE:**

   Rules for designing field names ____________________

   ____

   Command to enter file structure ____________________

   ____

3. **TO ENTER AND EDIT RECORDS IN DATA BASE FILE:**

   Command to enter file ____________________

   Command to move from field to field ____________________

   Command to move to a blank record ____________________

   Editing Commands:

   Command to insert data ____________________

   Command to delete data ____________________

   Command to move data ____________________

   Command to copy data ____________________

4. **TO EXIT THE DATA BASE FILE:**

   Command to exit file ____________________

ACTIVITY SHEET F 3.2 (continued)

5. TO PRINT THE DATA BASE FILE:

Command to print file ______________________________

ACTIVITY SHEET

F 3.3

Integrated Software--Data Base Module Concepts, Terms, and Commands

Using the information completed in Activity Sheet F 3.2, "Integrated Software--Data Base Module Concepts, Terms, and Commands," create, key, and print a data base file.

FILENAME:	SAMPLE
FIELD NAMES:	STUIDNO
	CLASS1
	CLASS2
	CLASS3
	CLASS4
	CLASS5

"SAMPLE" FILE DATA:

STUIDNO	CLASS1	CLASS2	CLASS3	CLASS4	CLASS5
86191201	96	98	99	99	94
86191206	98	94	94	88	92
86191214	96	90	84	97	95
86191109	87	94	99	82	93
87191113	88	91	90	78	86
88191003	88	85	82	91	84
86191205	75	86	83	92	78
86191008	82	84	80	81	86
88191110	77	81	82	80	84
87191112	68	75	80	87	92
87191104	67	90	85	82	76
87191007	75	79	78	82	81
86191202	69	78	80	83	84
88191111	76	64	58	71	76

AREA: Identify and Use Integrated Software

LEARNER OUTCOME: Integrated Software--Select the Data Base Module and Create a Data Base File

LEARNER OUTCOME: F 3

PERFORMANCE/PRODUCT CHECKLIST

STUDENT ______________________________ PERFORMANCE ATTEMPT 1 2 3 4

EVALUATOR ____________________________ DATE ______________________

EVALUATION SITE __________

TERMINAL PERFORMANCE OBJECTIVE:

Given the appropriate software, software manual, and workstation complete procedures for creating and entering a data base format, and enter and edit data using the defined screen format.

DIRECTIONS TO THE STUDENT:

Before attempting this learner outcome, for mastery, carefully review this checklist. You will be evaluated on the basis of this checklist. When you feel you are ready for evaluation, contact your instructor. You must complete your performance within 60 minutes and must score at least 10 out of 10 points, or 100%. Critical items are marked with an asterisk (*). These items must be satisfactorily completed.

DIRECTIONS TO THE EVALUATOR:

The student will contact you when ready for evaluation. The student must complete the performance within 60 minutes and must score 10 out of 10 points, or 100%. All items marked with an asterisk (*) must be satisfactorily completed.

PERFORMANCE/PRODUCT CHECKLIST

F 3

Integrated Software--Select the Data Base Module and Create a Data Base File

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NOTE*** It is assumed that the integrated system software has been previously loaded.

CRITICAL ITEMS	ITEMS TO BE OBSERVED OR CHECKED	RATING YES/NO
*1.	Select the data base module of the integrated softwareprogram.	___ ___
*2.	Key the data base file name.	___ ___
*3.	Enter the command to create the data base structure field names.	___ ___
*4.	Key data base field names and data types (if applicable).	___ ___
*5.	Exit the data base file structure.	___ ___
*6.	Key records into the data base file.	___ ___
*7.	Use editing commands for inserting, deleting, moving, and copying data while entering records.	___ ___
*8.	Exit the data base file.	___ ___
*9.	Print the data base file.	___ ___
*10.	Check for accuracy of data in data base file.	___ ___

TOTAL POINTS 10

POINTS NEEDED 10

SCORE ______

PERFORMANCE/PRODUCT CHECKLIST

SAMPLE DATA BASE FILE

F 3

Using the information listed in GRADES file below, create, key, and print a data base file.

FILENAME: ALPHALIST

FIELD NAMES:
1) STUDENTNO
2) NAME
3) ADDRESS
4) CITY
5) ST
6) ZIP

STUDENTNO	NAME	ADDRESS	CITY	ST	ZIP
86191201	Butler Lois	48 Palace Pl	Cortland	IL	60112
86191206	Harder Jaci	412 Holly Dr	DeKalb	IL	60115
86191214	Valente Oscar	415 S Fourth	DeKalb	IL	60115
86191109	Robinson Jan	333 Baseline	Kingston	IL	60148
87191113	Flores Carmen	21 Hatfield	DeKalb	IL	60115
88191003	Sailes Michael	963 University	Malta	IL	60150
86191205	Curry Linda	283 Oak St	Malta	IL	60150
86191008	Marvel Captain	910 Horace Rd	Cortland	IL	60112
88191110	Kepka Margery	4223 Barb Blvd	DeKalb	IL	60115
87191112	Pekar Margery	101 East St	Malta	IL	60150
87191104	Vanderwall Tim	101 Wimbledon	Sycamore	IL	60178
87191007	Williamson Emma	560 DeKalb Ave	Chicago	IL	60178
86191202	Owens Janice	Box 111	Kingston	IL	60148
88191111	Brownstein Dorothy	12 Wonder Way	Cortland	IL	60112

INFORMATION PROCESSING

Area: Identify and Use Integrated Software

Learner Outcome F 4: Select the Spreadsheet Module and Create a Spreadsheet File

Purpose: To use an integrated software package, one must be familiar with all modules (components) of that package. This learning guide will introduce the basic concepts of the spreadsheet module of an integrated package.

Objective: Given the appropriate software, software manual, and workstation, you will select and create a spreadsheet file. Given a written exam, you must answer 10 out of 10 or 100% on the written exam.

Estimated Class Time: 2 hrs.

Learner Outcome F 4

Select the Spreadsheet Module and Create a Spreadsheet File

LEARNING STEPS

READ:	Information Sheet F 4.1, "Integrated Software--Spreadsheet Module Concepts, Terms, and Commands."
READ:	Integrated Software--Spreadsheet Module, User's Manual. See your instructor.
COMPLETE:	Activity Sheet F 4.2, "Integrated Software--Spreadsheet Module Concepts, Terms and Commands."
COMPLETE:	Activity Sheet F 4.3, "Select the Spreadsheet Module and Create a Spreadsheet File."
COMPLETE:	Written Exam F 4, "Integrated Software--Select the Spreadsheet Module and Create a Spreadsheet File."

INFORMATION SHEET

F 4.1

Integrated Software--Spreadsheet Module Concepts, Terms, and Commands

NOTE*** Refer to the "Identify and Use Electronic Spreadsheets" unit for the general concepts and terminology related to this module.

In our daily lives, each of us must use numbers, arithmetic operations, and calculations. These problems can be solved with mental conception, pencil and paper, calculators, or with computers.

Software applications that create spreadsheets are one of the most useful management tools that microcomputing offers. Spreadsheets are useful in a wide variety of applications.

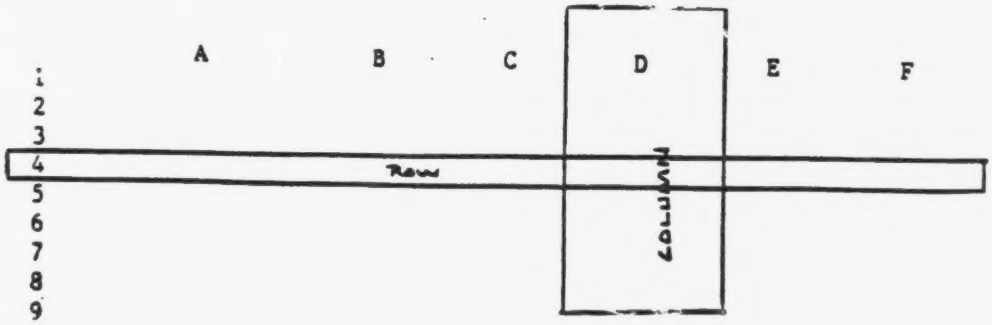
Spreadsheets may be used to prepare budgets, financial statements, sales forecasts, and loan amortization schedules.

Sales By Month

	January	February	March	Total
Revenue:				
Sales	21000.00	24500.00	22250.00	67750.00
Less: Returns	500.00	860.00	900.00	2260.00
Net Sales	20500.00	23640.00	21350.00	65490.00
Expenses:				
Advertising	900.00	1250.00	1300.00	3450.00
Entertainment	575.00	400.00	750.00	1725.00
Miscellaneous	675.00	870.00	750.00	2295.00
Salary	4750.00	5600.00	6200.00	16550.00
Utilities	3400.00	3400.00	3400.00	10200.00
Total	10300.00	11520.00	12400.00	34220.00
Net Income	10200.00	12120.00	8950.00	31270.00

Electronic spreadsheets resemble an accountant's columnar pad and are arranged in columns and rows. The rows and columns are named for easy identification and location. For this example, rows are numeric and columns are alphabetic.

INFORMATION SHEET F 4.1 (continued)



Cells are the individual points where columns and rows intersect. Cells are named by two coordinates referring to the name of the column and the name of the row that intersect at that location.

On most spreadsheet applications, three (3) different kinds of information may be keyed into any cell--labels, numbers, and formulas.

Department	Production	Quality Control	Total
Expense Categories			
Full time labor	$250,000.00	$15,000.00	$265,000.00
Part time labor	$55,000.00	$0.00	$55,000.00
Miscellaneous	$4,000.00	$25,000.00	$29,000.00
Electricity	$20,000.00	$4,000.00	$24,000.00
Cabbage Seed	$1,500.00	$20.00	$1,520.00
Total	$330,500.00	$44,020.00	$374,520.00

In the example above, Department, Production, Quality Control, Total, Expense Categories, Full-time Labor, Part-time Labor, Miscellaneous, Electricity, and Cabbage Seed are all LABEL entries. In most cases, LABELS are alphabetic.

The amounts such as $250,000 and $1,500 are NUMERIC entries.

From the appearance, we might believe that the amounts that appear in the total column and row are also NUMERIC entries. However, close examination of those cells reveals that the number that appears is the result of a calculation. The designer of the spreadsheet keyed in a formula instructing the computer to perform some arithmetic operation to determine that amount which appears.

ACTIVITY SHEET

F 4.2

Integrated Software--Spreadsheet Module Concepts, Terms, and Commands

The purpose of this activity is to determine whether or not you have understood how to select and create a spreadsheet file.

Please complete the following statements by selecting the one answer that best completes the sentence, and by writing your answer on the answer sheet:

1. A spreadsheet is

   A. an integrated collection of data organized in a manner that allows for the retrieval and use of that data by anyone needing it
   B. a module that allows for the electronic editing, modifying, and revising of typed copy
   C. a module that is used to record financial information
   D. all of the above
   E. none of the above

2. A cell is defined as

   A. a calculated field
   B. that point at which columns and rows intersect
   C. a column heading
   D. all of the above
   E. none of the above

3. A row is

   A. a horizontal arrangement of information
   B. a vertical arrangement of information
   C. a combination of horizontal and vertical arrangements
   D. all of the above
   E. none of the above

4. A column is

   A. a horizontal arrangement of information
   B. a vertical arrangement of information
   C. a combination of horizontal and vertical arrangements
   D. all of the above
   E. none of the above

ACTIVITY SHEET F 4.2 (continued)

5. All of the following would be a good application for a spreadsheet except

   A. estimating profits for the coming year
   B. listing monthly sales of products
   C. typing a three-paragraph page
   D. printing a report of wages earned by employees

6. The following information can be entered into a cell

   A. labels
   B. numbers
   C. formulas
   D. all of the above
   E. none of the above

7. Cells are identified by

   A. formulas
   B. names
   C. coordinates
   D. all of the above
   E. none of the above

Activity Sheet Key

F 4.2

Integrated Software--Spreadsheet Module Concepts, Terms, and Commands

Please complete the following statements by selecting the one answer that best completes the sentence:

1. A spreadsheet is

   C. a module that is used to record financial information

2. A cell is defined as

   B. that point at which columns and rows intersect

3. A row is

   A. a horizontal arrangement of information

4. A column is

   B. a vertical arrangement of information

5. All of the following would be a good application for a spreadsheet except

   C. typing a three-paragraph page

6. The following information can be entered into a cell

   D. all of the above

7. Cells are identified by

   C. coordinates

ACTIVITY SHEET

F 4.3

Select the Spreadsheet Module and Create a Spreadsheet File

Design and create a spreadsheet using the following information. Include formulas where applicable. For each student, derive total points and average. For each class, derive totals.

Student #1
ID # 86191205

Class #1	75
Class #2	86
Class #3	83
Class #4	97
Class #5	88

Student #2
ID # 86191206

Class #1	98
Class #2	94
Class #3	94
Class #4	88
class #5	96

Student #3
ID # 87191104

Class #1	87
Class #2	90
Class #3	85
Class #4	92
Class #5	96

Student #4
ID # 87191007

Class #1	75
Class #2	79
Class #3	78
Class #4	82
Class #5	81

Student #5
ID # 81691008

Class #1	82
Class #2	84
Class #3	80
Class #4	81
Class #5	96

Student #6
ID # 86191202

Class #1	69
Class #2	78
Class #3	80
Class #4	83
Class #5	84

Student #7
ID # 86191109

Class #1	87
Class #2	94
Class #3	99
Class #4	92
Class #5	98

Student #8
ID # 88191110

Class #1	77
Class #2	81
Class #3	82
Class #4	80
Class #5	84

Student #9
ID # 88191111

Class #1	71
Class #2	54
Class #3	58
Class #4	66
Class #5	71

Student #10
ID # 88191003

Class #1	88
Class #2	85
Class #3	82
Class #4	91
Class #5	79

ACTIVITY SHEET F 4.3 (continued)

Student #11
ID # 86191201
Class #1 96
Class #2 98
Class #3 99
Class #4 99
Class #5 94

Student #12
ID # 87191112
Class #1 63
Class #2 70
Class #3 75
Class #4 85
Class #5 82

Student #13
ID # 87191113
Class #1 88
Class #2 91
Class #3 90
Class #4 88
Class #5 98

Student #14
ID # 86191214
Class #1 96
Class #2 90
Class #3 84
Class #4 97
Class #5 83

Additional Information: Any format is acceptable as long as all information is entered and all totals are included. The title of your spreadsheet should be

Winter Grades

Name the spreadsheet WNTRGRAD.
Print the spreadsheet.

Options: Once the spreadsheet is completed, use the sort command to sort by student number, total points, or average.

Your spreadsheet might look like the following:

Winter Grades

Student #	Class 1	Class 2	Class 3	Class 4	Class 5	Total points	Average
86191205	75	86	83	97	88	429	85.80
86191206	98	94	94	88	96	470	94.00
87191104	87	90	85	92	96	450	90.00
87191007	75	79	78	82	81	395	79.00
81691008	82	84	80	81	96	423	84.60
86191202	69	78	80	83	84	394	78.80
86191109	87	94	99	92	98	470	94.00
88191110	77	81	82	80	84	404	80.80
88191111	71	54	58	66	71	320	64.00
88191003	88	85	82	91	79	425	85.00
86191201	96	98	99	99	94	486	97.20
87191112	63	70	75	85	82	375	75.00
87191113	88	91	90	88	98	455	91.00
86191214	96	90	84	97	83	450	90.00
Total	1152	1174	1169	1221	1230	5946	

WRITTEN EXAM

F 4

Integrated Software--Select the Spreadsheet Module and Create a Spreadsheet File

The purpose of this exam is to determine whether or not you have understood the information on selecting and creating a spreadsheet file.

Carefully read each of the statements contained in this exam. If the statement is TRUE, circle the "T" to the left of the statement. If the statement is FALSE, circle the "F" to the left of the statement. To master this exam you must answer 10 out of 10 statements correctly, or 100%.

WRITTEN EXAM

F 4

Integrated Software--Select the Spreadsheet Module and Create a Spreadsheet File

T F 1. A cell is the point at which columns and rows intersect.

T F 2. Labels and numbers are examples of the types of information that can be entered in a cell.

T F 3. Rows are a horizontal arrangement of information.

T F 4. Columns are a horizontal arrangement of information.

T F 5. A spreadsheet is a module that allows for the electronic editing, modifying, and revising of typed copy.

T F 6. A report of the wages earned by employees would be a good application for a spreadsheet.

T F 7. On an electronic spreadsheet, formulas cannot be entered to calculate entries made in a column.

T F 8. Addition, subtraction, multiplication, and division are arithmetic operations that may be used in a formula.

T F 9. On an electronic spreadsheet, it is possible to change the width of columns.

T F 10. Labels are usually alphabetic items.

Written Exam Key

F 4

Integrated Software--Select the Spreadsheet Module and Create a Spreadsheet File

TRUE 1. A cell is the point at which columns and rows intersect.

TRUE 2. Labels and numbers are examples of the types of information that can be entered in a cell.

TRUE 3. Rows are a horizontal arrangement of information.

FALSE 4. Columns are a horizontal arrangement of information.

FALSE 5. A spreadsheet is a module that allows for the electronic editing, modifying, and revising on typed copy.

TRUE 6. A report of the wages earned by employees would be a good application for a spreadsheet.

FALSE 7. On an electronic spreadsheet, formulas cannot be entered to calculate entries made in a column.

TRUE 8. Addition, subtraction, multiplication, and division are arithmetic operations that may be used in a formula.

TRUE 9. On an electronic spreadsheet, it is possible to change the width of columns.

TRUE 10. Labels are usually alphabetic items.

INFORMATION PROCESSING

Area: Identify and Use Integrated Software

Learner Outcome F 5: Select the Graphics Module and Create a Graph of Existing Data

Purpose: As a worker in the modern office, you will need to create a graphics representation from existing data. You will select the data and choose the appropriate graphics option to print a graphics representation.

Objective: Given a microcomputer system, an integrated software package, and documentation, create and print a graphics representation. You must score 10 out of 10 points, or 100% on a performance/product checklist.

Estimated Class Time: 2 hrs.

Learner Outcome F 5

Select the Graphics Module and Create a Graph of Existing Data

LEARNING STEPS

READ: Information Sheet F 5.1, "Integrated Software Graphics Module Concepts, Terms, and Commands."

COMPLETE: Activity Sheet F 5.2, "Integrated Software Graphics Module Concepts, Terms, and Commands."

READ: User's Manual, Integrated Software. See your instructor.

COMPLETE: Activity Sheet F 5.3, "Create a Graph from a New File."

COMPLETE: Activity Sheet F 5.4, "Create a Graph from an Existing File."

COMPLETE: Performance/Product Checklist F 5, "Select the Graphics Module and Create a Graph of Existing Data."

RESOURCES

F 5

AppleWorks Reference Manual, Apple Computer, Inc., Cupertino, CA, 1983.

Desoutels, Edouard J., Symphony for the IBM PC and Compatible Computers, Wm. C. Brown Publishers, Dubuque, IA, 1985.

Harrison, Bill, An Introduction: Framework, Ashton-Tate Publishing Group, Culver City, CA, 1984.

PFS Series Documentation (Plan, Write, File, Report, Access Graph), Software Publishing Co., Mountain View, CA, 1985.

Price, Wilson T., Computers and Application Software: An Introduction, Holt, Rinehart, and Winston, Chicago, IL, 1985.

Wade, Howard H., The Perfect Series Documentation (Filer, Writer, Speller, and Calc), Columbia Data Products, Inc., 1983.

MAGAZINE SOURCES

Business Computer Systems
Business Computers
Computer Decisions
Information Week
Lotus
Modern Office Technology
Office Systems 85
PC Week
PC World
Personal Computing
Systems & Software

INFORMATION SHEET

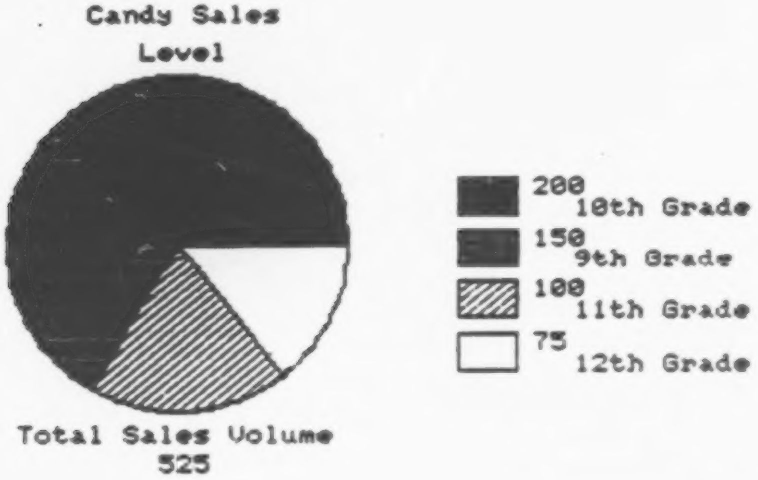
F 5.1

Integrated Software Graphics Module
Concepts, Terms, and Commands

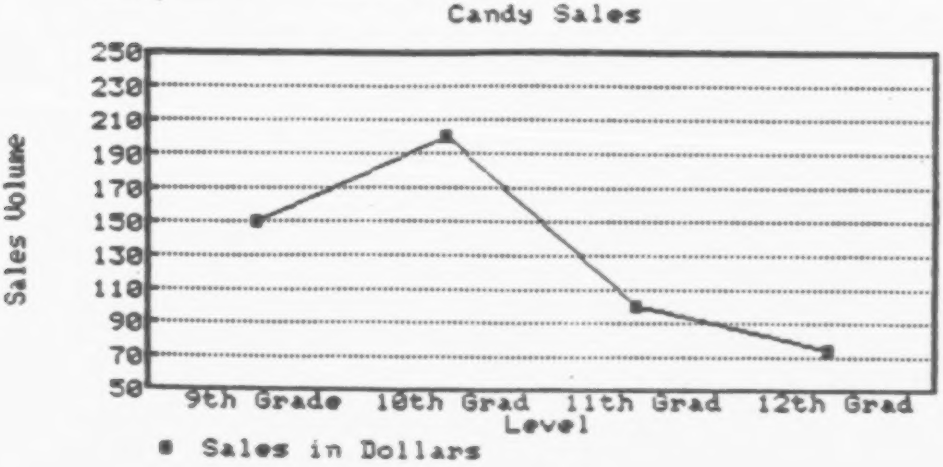
WHAT IS A BUSINESS GRAPHIC?

A business graphic is some type of picture that is used to convey relationships between and/or among numeric information. The most common types of business graphics are the following:

Pie chart, which shows the relative proportions of items making up a whole.

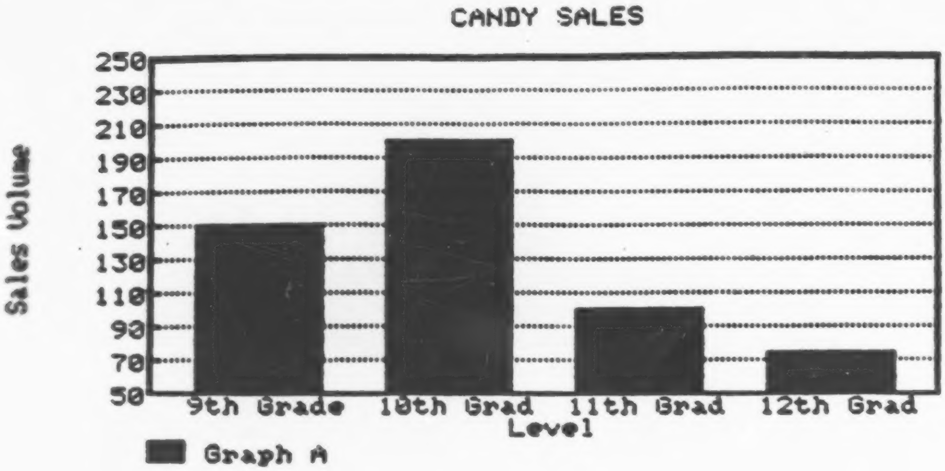


Line chart - shows trends



INFORMATION SHEET F 5.1 (continued)

Bar Chart, which shows trends or relationships among values.



In addition to these basic graph forms, many software packages allow the user to create stacked bar charts, exploded pie charts, marked points graphs, and X-Y graphs (scatter graphs). For a complete explanation and examples of these types of graphs, review the duty area D which pertains to graphics.

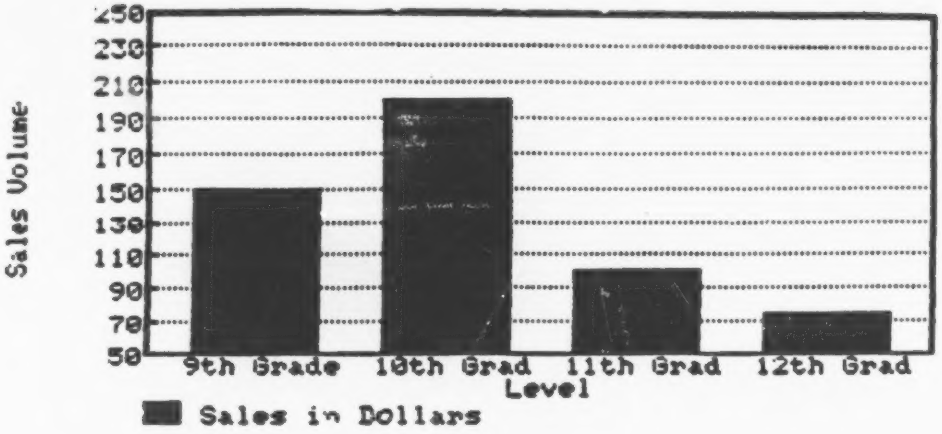
WHY USE BUSINESS GRAPHICS?

A picture conveys a result more clearly than a set of numbers. In business documents and presentations, the use of graphs and charts shows relationships and trends in numeric data in a more concise and clear manner than tables of numeric figures do. For example, consider the following illustrations:

CANDY SALES

Freshmen	$150
Sophomores	$200
Juniors	$100
Seniors	$ 75

INFORMATION SHEET F 5.1 (continued)



Even though this is a simple example, it shows that relationships can be seen more clearly by presenting data in graphic form. Graphic data is digested more quickly by the observer. This makes graphics particularly useful in meetings and presentations.

WHY IS A GRAPHICS MODULE OFTEN INCLUDED IN AN INTEGRATED PACKAGE?

An advantage of integrated software is that data created in one module of the system can be used in the other modules. For a graphics application, this means that data can be pulled out of an existing spreadsheet or data base for inclusion in a graph or chart. This means that data does not have to be reentered for use by the graphics software. Another advantage of an integrated environment is that a graph, once completed and saved, can be pasted into a word processing document, and may even be sent to another computer user through telecommunications.

HOW DO YOU USE GRAPHICS IN AN INTEGRATED PACKAGE OR SERIES?

Usually, a single menu selection is all that is required to enter the graphics module. There are many different ways to proceed from this point, depending on your particular integrated software. You will have to refer to your system documentation to learn the specifics for your package. There are some general terms and concepts you should know, however.

INFORMATION SHEET F 5.1 (continued)

The horizontal line of a graph is called the x-axis. The vertical line is referred to as the y-axis. There may be grid lines which run horizontally and/or vertically and mark units of measurement and/or classification. Often, it is possible to overlay one type of graph on top of another. Scaling is automatically done by the system when you choose the data that is to be graphed.

Probably the most important task in creating a graph is to carefully think about your data and select an appropriate type of graph. The type of graph is usually chosen from a menu. You may also be able to set options for printing different fonts and for different graphics devices.

Graphs may be displayed on a graphics monitor, printed using a printer capable of graphics output, or produced using a special device called a plotter. You need to check with your instructor to see which options are available to you.

ACTIVITY SHEET

F 5.2

Integrated Software Graphics Module
Concepts, Terms, and Commands

The purpose of this activity is to determine whether or not you have understood the concepts, terms, and commands of the integrated software graphics module.

Complete the following sentences by choosing the word that best completes each statement:

pie graph
line graph
bar graph
business graphics
X-axis
Y-axis
scaling
plotter
grid line

1. The use of graphs and charts to show relationships and trends in numeric data is called ______________________________.
2. A ________________________ shows the relative proportion of items making up a whole.
3. The horizontal line of a graph is called the _______________.
4. The special device used to draw a graph is called a ______________________________.
5. ___________________ is automatically done by the system when you choose the data that is to be graphed.
6. A __________________ shows the trends and relationships among values.
7. The vertical line of a graph is called the __________________.
8. A ____________________ shows trends.
9. A ______________________ runs horizontally and/or vertically and marks units of measurement and/or classifications.

Activity Sheet Key

F 5.2

Integrated Software Graphics Module
Concepts, Terms, and Commands

Complete the following sentences by choosing the word that best completes each statement:

pie graph
line graph
bar graph
business graphics
X-axis
Y-axis
scaling
plotter
grid line

1. The use of graphs and charts to show relationships and trends in numeric data is called business graphics.

2. A pie graph shows the relative proportion of items making up a whole.

3. The horizontal line of a graph is called the X-axis.

4. The special device used to draw a graph is called a plotter.

5. Scaling is automatically done by the system when you choose the data that is to be graphed.

6. A bar graph shows the trends and relationships among values.

7. The vertical line of a graph is called the Y-axis.

8. A line graph shows trends.

9. A grid line runs horizontally and/or vertically and marks units of measurement and/or classifications.

ACTIVITY SHEET

F 5.3

Create a Graph from a New File

The purpose of this activity is to determine whether or not you have understood the process to use to set up, create, edit, and print a business graphics application.

Follow carefully the steps below. Refer to your software application manual when needed.

STEP 1* Turn on microcomputer.

STEP 2* Insert proper disk(s).

*NOTE: Refer to your operator's manual first. Some systems change the orders of these steps.

STEP 3 Boot the system.

STEP 4 Select the menu option to input data into a graphics file.

STEP 5 Enter the following data:

Weekly Sales

Day 1	26,000
Day 2	18,000
Day 3	22,000
Day 4	31,000
Day 5	25,000

STEP 6 Save the data on diskette.

STEP 7 Select the menu option to define graph. Refer to your software manual.

STEP 8 Select the following options:

Title of graph	Weekly sales
X-axis description	Day
Y-axis description	Sales volume
Type of graph	Line

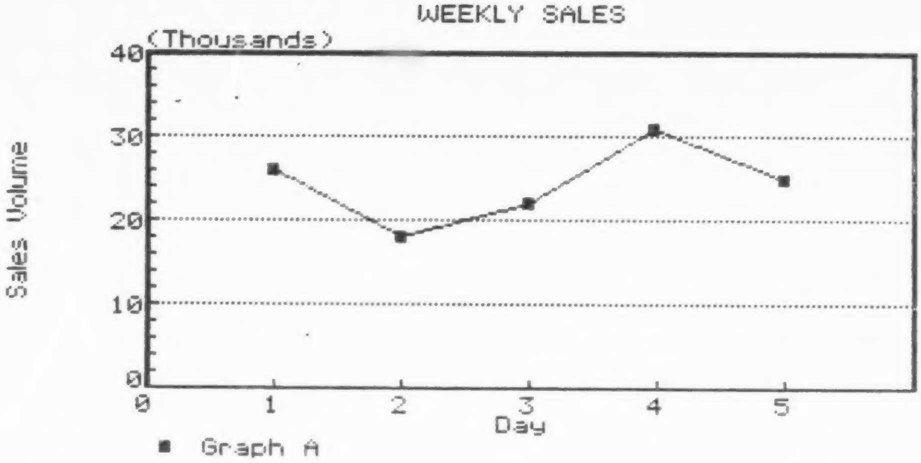
STEP 9 Print the graph.

STEP 10 Power down the microcomputer.

Activity Sheet Key

F 5.3

Create a Graph from a New File



ACTIVITY SHEET

F 5.4

Create a Graph from an Existing File

The purpose of this activity is to determine if you have understood the process used to create a graphics presentation from an existing file.

Follow carefully the steps below. Refer to your software manual when needed.

STEP 1* Turn on microcomputer.

STEP 2* Insert proper disk(s).

*NOTE: Refer to your operator's manual first. Some systems change the order of these steps.

STEP 3 Boot the system.

STEP 4 Select the menu option for the spreadsheet file.

STEP 5 Retrieve the electronic spreadsheet prepared in F 4 entitled WNTRGRAD.

STEP 6 Refer to your software manual for specific information on how to extract data from spreadsheet files to your graphic files.

STEP 7 Extract data for student averages.

STEP 8 Save information on diskette if necessary.

STEP 9 Select menu option to define graph. Refer to your software manual.

STEP 10 Select the following:

Title of Graph	Winter Grades
X-axis Description	Student
Y-axis Description	Scores
Type of Graph	Bar

STEP 11 Display graph on monitor.

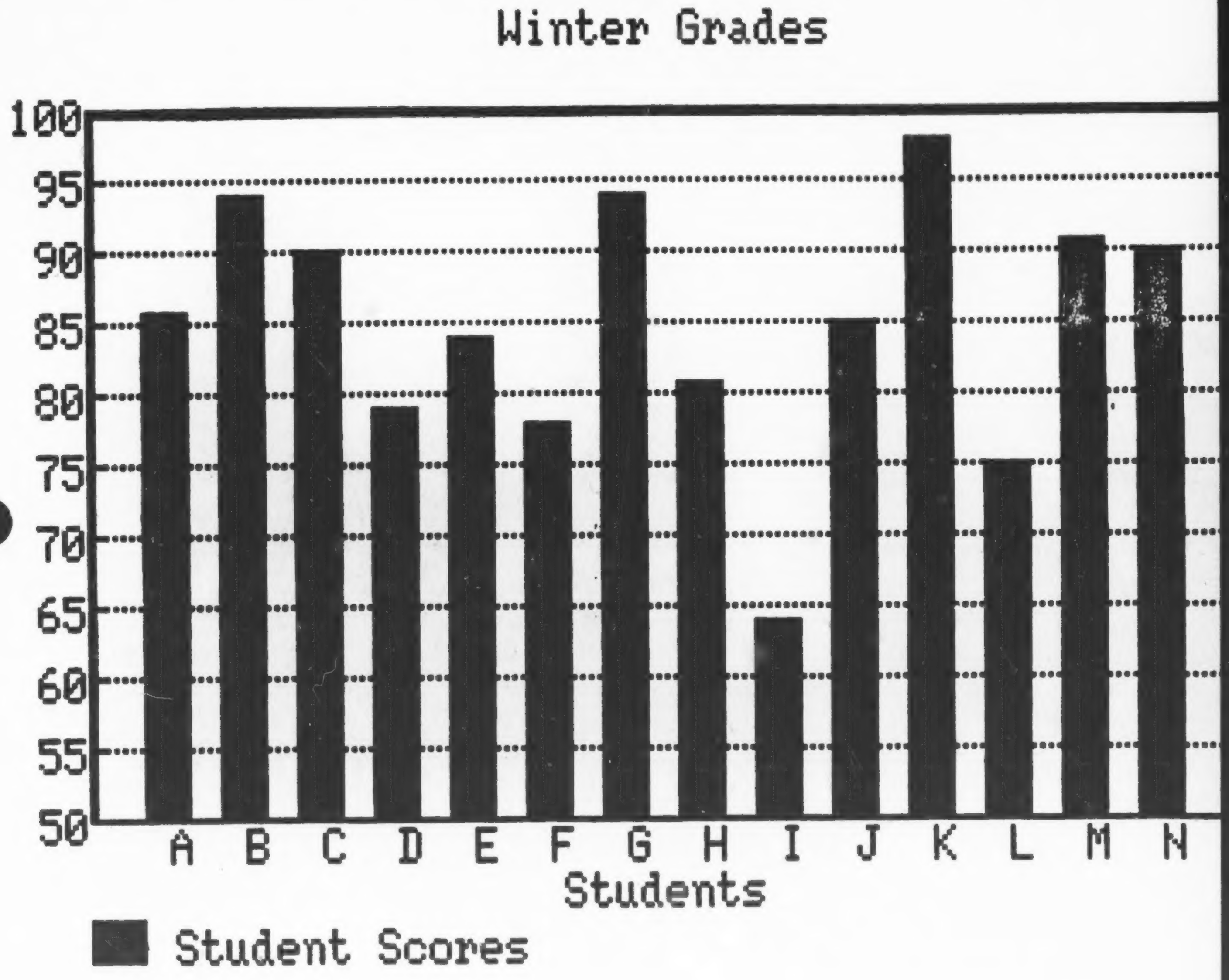
STEP 12 Print the graph.

STEP 13 Complete steps 9-12 again. This time change the type of graph to a LINE graph.

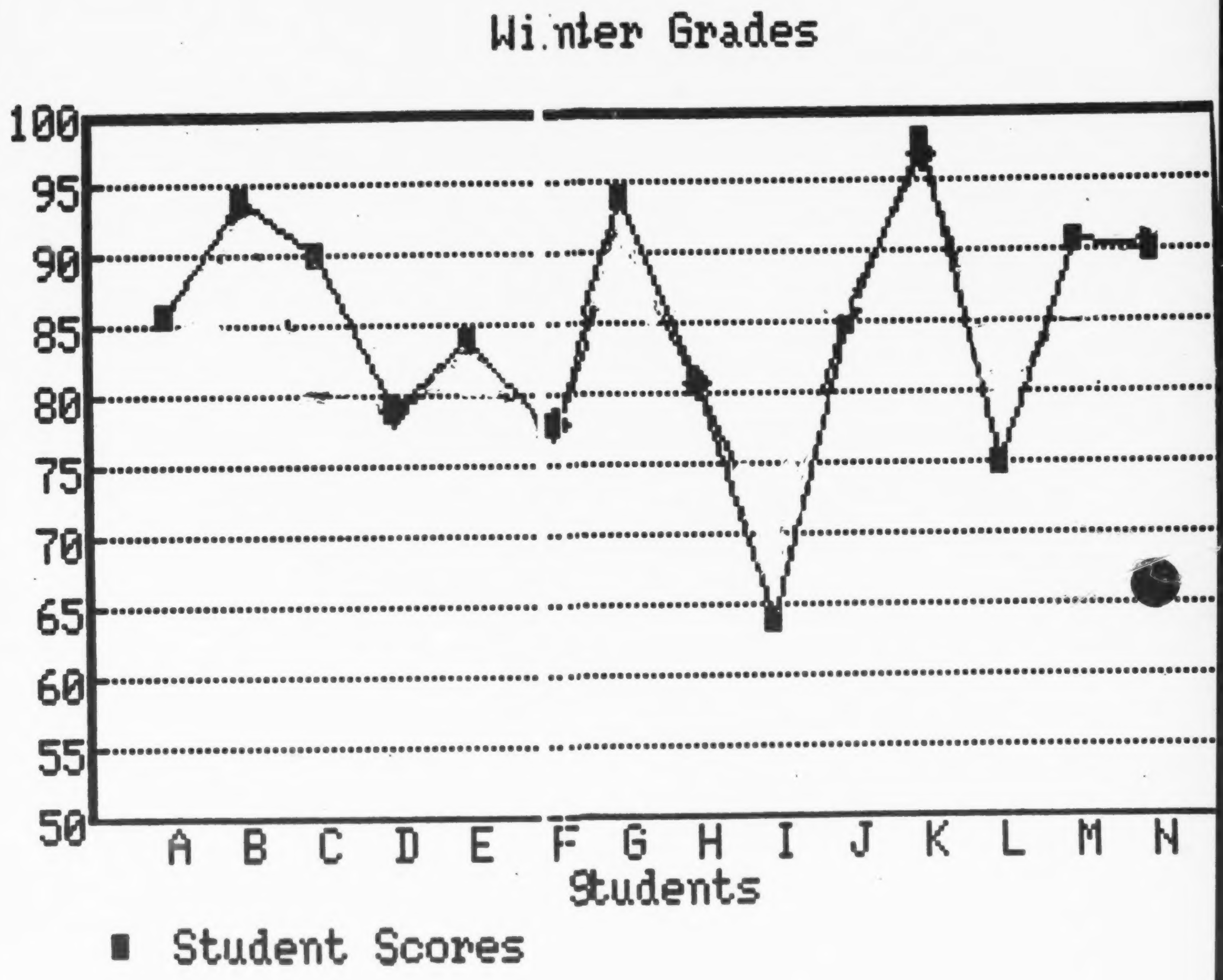
Activity Sheet Key

F 5.4

Create a Graph from
an Existing File



Activity Sheet Key 5.4 (continued)



AREA: Identify and Use Integrated Software

LEARNER OUTCOME: Select the Graphics Module and Create a Graph of Existing Data.

LEARNER OUTCOME: F 5

PERFORMANCE/PRODUCT CHECKLIST

STUDENT ______________________ PERFORMANCE ATTEMPT 1 2 3 4

EVALUATOR ______________________ DATE ______________________

EVALUATION SITE __________

TERMINAL PERFORMANCE OBJECTIVE:

Given the appropriate software, software manual, and workstation, complete procedures for creating a graph from an existing electronic spreadsheet file.

DIRECTIONS TO THE STUDENT:

Before attempting this learner outcome for mastery, carefully review this checklist. You will be evaluated on the basis of this checklist. When you feel you are ready for evaluation, contact your instructor. You must complete your performance within 15 minutes and must score at least 10 out of 10 points, or 100%. Critical items are marked with an asterisk (*). These items must be satisfactorily completed.

DIRECTIONS TO THE EVALUATOR:

The student will contact you when ready for evaluation. The student must complete the performance within 15 minutes and must score 10 out of 10 points, or 100%. All items marked with an asterisk (*) must be satisfactorily completed.

PERFORMANCE/PRODUCT CHECKLIST

F 5

Select the Graphics Module and Create a Graph of Existing Data

CRITICAL ITEMS	ITEMS TO BE OBSERVED OR CHECKED	RATING YES/NO
*1.	Select the graphics module of the integrated software.	___ ___
*2.	Retrieve the spreadsheet WNTRGRAD.	___ ___
*3.	Extract data for student averages.	___ ___
*4.	Was the type of graph (bar) selected correctly?	___ ___
*5.	Was the X-axis information entered correctly?	___ ___
*6.	Was the Y-axis information entered correctly?	___ ___
*7.	Was title of graph student averages, entered correctly?	___ ___
*8.	Was graph displayed on monitor before print out?	___ ___
*9.	Was information saved on disk correctly?	___ ___
*10.	Was the graph printed and turned in?	___ ___

TOTAL POINTS 10

POINTS NEEDED 10

SCORE ______

NOTE: The answer key will be identical to the bar graph in Activity Sheet F 5.4, except for a change of title.

INFORMATION PROCESSING

Area: Identify and Use Integrated Software

Learner Outcome F 6: Select the Word Processing Module and Create a Final Report by Integrating Information from Data Base/Spreadsheet Files

Purpose: To use an integrated software package or system, you must be familiar with all components of that package or system. This learning guide will provide you with the knowledge and techniques of using a word processing module and integrating data from a data base file and a spreadsheet file.

Objective: Given the necessary information and a workstation, you will select the word processing module and create a final report by integrating information from previous files. To master this learner outcome, you must score 15 out of 15 points, or 100% on a performance/product checklist.

Estimated Class Time: 2 hrs.

Learner Outcome F 6

Select the Word Processing Module and Create a Final Report by Integrating Information from Data Base/Spreadsheet Files

LEARNING STEPS

READ: Information Sheet F 6.1, "Integrated Software--Word Processing Module-Concepts and Terms."

READ: Word Processing chapter(s) in Integrated Software User's Manual.

REVIEW: Appendices or reference guide in Integrated Software User's Manual.

REVIEW: Information Sheet F 1.3, "Integrated Software Glossary."

COMPLETE: Activity Sheet F 6.2, "Integrated Software--Word Processing Module-Concepts and Terms."

COMPLETE: Activity Sheet F 6.3, "Integrated Software--Word Processing Module-Keystrokes, Control Keys, and Procedures."

OBSERVE: Teacher-led demonstration on the word processing module.

COMPLETE: Activity Sheet F 6.4, "Integrated Software--Select the Word Processing Module and Create a Word Processing Report from a Data Base File."

COMPLETE: Activity Sheet F 6.5, "Integrated Software--Select the Word Processing Module and Create a Word Processing Report from a Spreadsheet File."

COMPLETE: Performance/Product Checklist F 6, "Integrated Software--Select the Word Processing Moudle and Create a Final Report by Integrating Information from a Data Base File." Contact your instructor.

COMPLETE: Performance/Product Checklist F 6, "Integrated Software--Select the Word Processing Module and Create a Final Report by Integrating Information from a Spreadsheet File." Contact your instructor.

INFORMATION SHEET

F 6.1

Integrated Software--Word Processing Module-Concepts and Terms

CLIPBOARD	in an integrated package, an area that temporarily holds data from one module that you want to paste into another
CUT AND PASTE	the concept of removing part of one developed application and placing it into another; e.g., cutting out a portion of a data base file and copying/pasting it into a report developed in the word processing module
DOCUMENT	an output medium; for example, interoffice memos, reports, bar/pie/line graph, letters, articles, financial tables, bills, and invoices
EDIT	to correct or update text by adding, deleting, changing, or moving words and entire lines
FILE SIZE	the length of a word processing file
FORMAT	the arrangement of data on a form or in storage
LOAD	to transfer information from the disk to RAM (Random Access Memory)
MENU	a list of options offered to a user on the monitor or screen
MOVE	to physically move text within the document such as words or blocks of information
RETRIEVE	to access previously stored information

INFORMATION SHEET F 6.1 (continued)

SAVE	to store information on disk from RAM (Random Access Memory)
SPECIAL FEATURES	any of the formatting and printing features that provide a variety of options to create a document to your specifications
TEXT	written or printed words
WORD PROCESSING	a software program that you can use to enter, edit, store, retrieve, and print text via the keyboard. It is a method of producing documents quickly, accurately, and efficiently

ACTIVITY SHEET

F 6.2

Integrated Software--Word Processing Module-Concepts and Terms

The purpose of this activity is to determine whether or not you have understood the word processing module concepts and terms in integrated software.

Answer each of the following questions:

1. What is word processing?

____

____

____

List and describe the main features/functions of word processing.

2. ______________________________
3. ______________________________
4. ______________________________
5. ______________________________

List two (2) advantages of using a word processing program or module.

6. ______________________________
7. ______________________________
8. Define and list two (2) examples of a document.

Definition: ______________________________

____

____

Examples:

a. ______________________________

b. ______________________________

9. Define "cut and paste."

____

____

Activity Sheet Key

F 6.2

Integrated Software--Word Processing Module-Concepts and Terms

Answer each of the following questions:

1. What is word processing?

   a software program that allows for entering, editing,
   storing, retrieving, and printing text

   List and describe the main features/functions of word processing.

2. May be enter, edit, store, retrieve, print, etc.
3. (These answers will vary depending on the source
4. used.)
5.

   List two (2) advantages of using a word processing program or module.

6. faster, more accurate, easier to use
7. allows for storage, easy editing
8. Define and list two (2) examples of a document.

   Definition: an output medium

   Examples:

   a. interoffice memos, reports, graphs, letters

   b. articles, financial tables, bills, invoices

9. Define "cut and paste."

   the concept of removing part of one developed
   application and placing it into another

ACTIVITY SHEET

F 6.3

Integrated Software--Word Processing Module-Keystrokes, Control Keys, and Procedures

The purpose of this activity is to determine whether or not you have understood the word processing module keystrokes, control keys, and procedures in integrated software.

Using your software manual and/or program menu, answer the following questions (list keystroke(s), control keys, features, or procedures):

ENTER

1. To enter the word processing module of the integrated software package ______________________________

   ____

2. To open/create a document ______________________________

   ____

   ____

3. To set dots or markers ______________________________
4. To set and clear tabs ______________________________
5. To return to the main menu ______________________________
6. To view the whole document ______________________________
7. To accept or continue with the function ______________________________

   ____

8. To center a title ______________________________
9. To leave blank lines ______________________________

EDIT

1. To erase a line, word, and/or character ______________________________

   ____

2. To insert information ______________________________

   ____

ACTIVITY SHEET F 6.3 (continued)

3. To delete information ____________________
4. To search and replace information ____________________
5. To move text within the document ____________________
6. To copy or duplicate text within a document ____________________

   ____
7. To use a spelling check ____________________

CURSOR MOVEMENTS/CONTROL KEYS

1. To move the cursor up, down, left, right ____________________
2. To move the cursor to the tab ____________________
3. To display the previous screen ____________________
4. To display the next screen ____________________
5. To go to the beginning of a document ____________________
6. To go to the end of a document ____________________
7. To display help screen ____________________

RETRIEVE

1. To select modules from the main menu ____________________
2. To select word processing files ____________________

PRINT

1. To print a document (whole, part, specified lines or pages)

   ____
2. To change printer default values ____________________
3. To format, layout, or design a document ____________________

   ____
4. To produce special print features; for example, boldface, print underlining, sub and superscript ____________________

   ____
5. To number page(s) ____________________

ACTIVITY SHEET F 6.3 (continued)

STORE

1. To close/save a document or file ______________________________

QUIT

1. To exit the word processing module ____________________________

2. To exit any phase of the module _______________________________

3. To exit the integrated software package ______________________

4. To exit a module or function __________________________________

CUT AND PASTE

1. To store selected information from one module ________________

   ____

2. To add selected information to another module ________________

   ____

ACTIVITY SHEET

F 6.4

Integrated Software--Select the Word Processing Module and Create a Word Processing Report from a Data Base File

The purpose of this activity is to determine whether or not you have understood how to create a word processing report including information from the data base file.

Using Activity Sheet F 6.3 as a guide, follow the procedures necessary to complete a final report that will integrate the word processing and data base modules of the integrated package. (The steps may vary with various software.)

STEP 1: Using the appropriate keys, select the word processing module from the main menu.

STEP 2: Create a word processing file.

STEP 3: Enter the text (memo headings and paragraph) into the file. See Illustration F 6.4.

STEP 4: If necessary, edit the text by inserting and/or deleting appropriate characters or text.

STEP 5: Save the word processing file.

STEP 6: Using the menu selection, get the data base file, "Alphalist."

STEP 7: Copy the "Alphalist" file to temporary storage.

STEP 8: Using the menu selection, select the word processing module and word processing file.

STEP 9: Copy the data base file from temporary storage into the word processing document.

STEP 10: Edit the word processing document to ensure correct format of integrated data.

STEP 11: Save the revised document.

STEP 12: Print a hard copy of the word processing file.

ILLUSTRATION

F 6.4

Integrated Software--Select the Word Processing Module and Create a Word Processing Report From a Data Base File

TO: Principal

FROM: Mrs. Joanne Costa

RE: FBLA Field Trip

The following students will be attending the Future Business Leaders of America Conference next week in Canada. The students' identification numbers, names, addresses, cities, states, and zip codes are listed below.

STUDENT#	NAME	ADDRESS	CITY	ST	ZIP
86191205	Curry Linda	283 Oak St	Malta	IL	61050
86191206	Harder Jaci	412 Holly Dr	DeKalb	IL	60115
87191104	Vanderwall Tim	101 Wimbledon	Sycamore	IL	60178
87191007	Williamson Emma	560 DeKalb Ave	Chicago	IL	60178
86191202	Marvel Captain	910 Horace Ave	Cortland	IL	60112
86191202	Owens Janice	Box 111	Kingston	IL	60148
87191109	Robinson Jan	333 Baseline Rd	Kingston	IL	60148
88191110	Kepka Margery	4228 Barb Blvd	DeKalb	IL	60115
88191111	Brownstein Dorothy	12 Wonder Way	Cortland	IL	60112
88191003	Sailes Michael	968 University	Malta	IL	61050
86191201	Butler Lois	48 Palace Place	Cortland	IL	60112
87191112	Pekar Margery	101 Easy St	Malta	IL	61050
87191113	Flores Carmen	21 Hatfield Ave	DeKalb	IL	60115
86191214	Valente Oscar	415 S. Fourth	DeKalb	IL	60115

ACTIVITY SHEET

F 6.5

Integrated Software--Select the Word Processing Module and Create a Word Processing Report from a Spreadsheet File

The purpose of this activity is to determine whether or not you have understood how to complete a report that will integrate the word processing and spreadsheet modules.

Using Activity Sheet F 6.3 as a guide, follow the procedures necessary to complete a final report that will integrate the word processing and spreadsheet modules of the integrated package. (The steps may vary with various software.)

STEP 1: Using the appropriate keys, select the word processing module from the main menu.

STEP 2: Create a word processing file.

STEP 3: Enter the text (memo headings and paragraphs) into the file. See Illustration F 6.5.

STEP 4: If necessary, edit the text by inserting and/or deleting appropriate characters or text.

STEP 5: Save the word processing file.

STEP 6: Using the menu selection, get the spreadsheet file "WNTRGRAD."

STEP 7: Copy the "WNTRGRAD" file to temporary storage.

STEP 8: Using the menu selection, select the word processing module and word processing file.

STEP 9: Copy the spreadsheet file from temporary storage into the word processing document.

STEP 10: Edit the word processing document to ensure correct format of integrated data.

STEP 11: Save the revised document.

STEP 12: Print a hard copy of the word processing file.

ILLUSTRATION

F 6.5

Integrated Software--Select the Word Processing Module
and Create a Word Processing Report from a Spreadsheet File

TO: Superintendent

FROM: Mrs. Joanne Costa

RE: FBLA Field Trip

DATE: August 1, 1985

According to school policy, students with grade point averages below 80% are not allowed to go on field trips.

They will need your approval in order to participate in this event. The data below includes the student#, five class scores, the total, and the average of those classes.

Student#	1	2	3	4	5	TOT	AVE
88191111	76	64	58	71	76	345	69.00
86191202	69	78	80	83	84	394	78.80
86191007	75	79	78	82	81	395	79.00

AREA: Identify and Use Integrated Software

LEARNER OUTCOME: Select the Word Processing Module and Create a Final Report by Integrating Information from a Data Base/File

LEARNER OUTCOME: F 6

PERFORMANCE/PRODUCT CHECKLIST

STUDENT ______________________________ PERFORMANCE ATTEMPT 1 2 3 4

EVALUATOR ____________________________ DATE ______________________

EVALUATION SITE ___________

TERMINAL PERFORMANCE OBJECTIVE:

Given the appropriate software, software manual, and workstation, complete procedures for creating a final report by integrating information from previous files.

DIRECTIONS TO THE STUDENT:

Before attempting this learner outcome for mastery, carefully review this checklist. You will be evaluated on the basis of this checklist. When you feel you are ready for evaluation, contact your instructor. You must complete your performance within 15 minutes and must score at least 15 out of 15 points, or 100%. Critical items are marked with an asterisk (*). These items must be satisfactorily completed.

DIRECTIONS TO THE EVALUATOR:

The student will contact you when ready for evaluation. The student must complete the performance within 15 minutes and must score 15 out of 15 points, or 100%. All items marked with an asterisk (*) must be satisfactorily completed.

PERFORMANCE/PRODUCT CHECKLIST

F 6

Integrated Software--Select the Word Processing Module and Create a Final Report by Integrating Information from a Data Base File

NOTE: It is assumed that the integrated system software has been previously loaded.

CRITICAL ITEMS	ITEMS TO BE CHECKED OR OBSERVED	RATING YES/NO
*1.	Select the word processing module from the main menu.	___ ___
*2.	Create a word processing file, "WPDB".	___ ___
*3.	Enter and edit text (use F 6.4) into the file.	___ ___
*4.	Save the file.	___ ___
*5.	Access the data base file "Alphalist."	___ ___
*6.	Move or copy the following fields from the data base file to the temporary storage: STUDENT#, NAME, ADDRESS, CITY, STATE, ZIP.	___ ___
*7.	Exit the data base file.	___ ___
*8.	Return to the word processing module.	___ ___
*9.	Place the cursor where the stored information will be placed.	___ ___
*10.	Use the appropriate function keys to copy the information from the temporary storage to word processing document.	___ ___
*11.	Edit the word processing document to ensure correct format of integrated data.	___ ___
*12.	Save the revised document.	___ ___
*13.	Select printer options.	___ ___
*14.	Print and submit a hard copy of the word processing file.	___ ___

PERFORMANCE/PRODUCT CHECKLIST F 6 (continued)

*15. Return software manuals and disk(s). ___ ___

TOTAL POINTS 15

POINTS NEEDED 15

SCORE ______

AREA: Identify and Use Integrated Software

LEARNER OUTCOME: Select the Word Processing Module and Create a Final Report by Integrating Information from a Spreadsheet File

LEARNER OUTCOME: F 6

PERFORMANCE/PRODUCT CHECKLIST

STUDENT ______________________________ PERFORMANCE ATTEMPT 1 2 3 4

EVALUATOR ______________________________ DATE ______________________

EVALUATION SITE ___________

TERMINAL PERFORMANCE OBJECTIVE:

Given the appropriate software, software manual, and workstation, complete procedures for selecting and creating a final report by integrating information from previous files.

DIRECTIONS TO THE STUDENT:

Before attempting this learner outcome for mastery, carefully review this checklist. You will be evaluated on the basis of this checklist. When you feel you are ready for evaluation, contact your instructor. You must complete your performance within 15 minutes and must score at least 15 out of 15 points, or 100%. Critical items are marked with an asterisk (*). These items must be satisfactorily completed.

DIRECTIONS TO THE EVALUATOR:

The student will contact you when ready for evaluation. The student must complete the performance within 15 minutes and must score 15 out of 15 points, or 100%. All items marked with an asterisk (*) must be satisfactorily completed.

PERFORMANCE/PRODUCT CHECKLIST

F 6

Integrated Software -- Select the Word Processing Module and Create a Final Report by Integrating Information from a Spreadsheet File

NOTE: It is assumed that the integrated system software has been previously loaded.

CRITICAL ITEMS	ITEMS TO BE CHECKED OR OBSERVED	RATING YES/NO
*1.	Select the word processing module from the main menu.	___ ___
*2.	Create a word processing file, "WPSS."	___ ___
*3.	Enter and edit text (use F 6.5) into the file.	___ ___
*4.	Save the file.	___ ___
*5.	Access the spreadsheet file "WNTRGRAD."	___ ___
*6.	Move or copy the following from the spreadsheet file to the temporary storage: STUDENT#, ID, CLASS 1, CLASS 2, CLASS 3, CLASS 4, CLASS 5, TOTAL, AVERAGE.	___ ___
*7.	Exit the spreadsheet file.	___ ___
*8.	Return to the word processing module.	___ ___
*9.	Place the cursor where the stored information will be placed.	___ ___
*10.	Use the appropriate keys to copy the information from the temporary storage to word processing document.	___ ___
*11.	Edit the word processing document to ensure correct format of integrated data.	___ ___
*12.	Save the revised document.	___ ___
*13.	Select printer options.	___ ___
*14.	Print and submit a hard copy of the word processing file.	___ ___

PERFORMANCE/PRODUCT CHECKLIST F 6 (continued)

*15. Return software manuals and disk(s). ___ ___

TOTAL POINTS 15

POINTS NEEDED 15

SCORE ______

INFORMATION PROCESSING

Area: Identify and Use Integrated Software

Learner Outcome F 7: Evaluate an Integrated Software Package

Purpose: As a worker in the modern office, you will participate in the selection of integrated software; you must have knowledge of the procedure involved in the evaluation process.

Objective: Given an integrated software package, manual, and evaluation sheet, you will evaluate your integrated software package. To master this learner outcome, you must score 7 out of 7 points, or 100% on a performance/product checklist.

Estimated Class Time: 1 hour

Learner Outcome F 7

Evaluate an Integrated Software Package

LEARNING STEPS

READ:	Information Sheet F 7.1, "Integrated Software--Evaluating an Integrated Software Package."
READ:	Information in one or more of the references on evaluating an integrated software package.
COMPLETE:	Activity Sheet F 7.2, "Integrated Software--Evaluating an Integrated Software Package."
COMPLETE:	Performance/Product Checklist F 7, "Evaluate an Integrated Software Package." Contact your instructor.

RESOURCES

F 7

Appleworks Reference Manual, Apple Computer, Inc., Cupertino, CA, 1983.

Desoutels, Edouard J., Symphony for the IBM, PC, and Compatible Computers, Wm. C. Brown Publishers, Dubuque, IA, 1985.

Harrison, Bill, An Introduction: Framework, Ashton-Tate Publishing Group, Culver City, CA, 1984.

PFS Series (Plan, Report, File, Write, Access, Graph), Software Publishing Co. Mountain View, CA, 1985.

Price, Wilson T., Computers and Applications Software: An Introduction, Holt, Rinehart, and Winston, Chicago, IL, 1985.

Wade, Howard H., The Perfect Series Documentation, Columbia Data Products, Inc., 1983.

MAGAZINE SOURCES

Business Computer Systems

Business Computers

Computer Decisions

Information Week

Lotus

Modern Office Technology

Office Systems 85

PC Week

PC World

Personal Computing

Systems & Software

INFORMATION SHEET

F 7.1

Integrated Software--Evaluating an Integrated Software Package

The selection of an integrated software package should be given time and consideration because many factors must be considered. Some of these considerations will be discussed in this worksheet. Current evaluations of integrated software packages are given in many computer magazines.

There are three types of integrated software. The single, multifunctional program will perform all or most of the functions of word processing, data base, spreadsheet, telecommunications, and graphics. This type requires a large memory space for the actual program and leaves little working area. Some programs require a hard disk system because of memory requirements.

The series or family type software is often referred to as modular software. The series software is a group of programs that can be distributed individually and data used from each other. This software requires that a new disk be placed into the computer when a function changes. There usually is more working memory while using these types of programs.

The operating environment type of integrated program allows several different types of software programs to share files and work together as an integrated system. Like multifunctional programs, this type also requires a large amount of RAM.

Most integrated programs are menu driven. They also allow for sub-menus to appear in the form of windows. Windows can show portions of information from more than one program at a time on the screen.

The integrated software package can contain all or several of the following: data base, spreadsheet, word processing, telecommunications, graphics, time management, and outlining.

The cost of integrated software ranges from $200 to $1,700. Because of the cost, it is necessary to evaluate thoroughly the software package you plan to purchase.

You can get information about integrated software from your local computer stores. Computer user groups also are a source of information.

INFORMATION SHEET F 7.1 (continued)

No integrated software package is perfect. You must know what functions you wish to perform, the amount of RAM needed by the program, and the compatibility of other programs to this package.

The integrated software manual for a package will be a major source of information in your evaluation of the software.

ACTIVITY SHEET

F 7.2

Integrated Software--Evaluating an Integrated Software Package

The purpose of this activity is to determine whether or not you have understood how to evaluate an integrated software package.

Complete the statements by filling in the correct word/words.

1. Name of the software to be evaluated? (Use your software.)

   ____

2. Brief description of the software?

   ____

   (Use the reverse side of this sheet if you need more space).

3. Type of computer system that will run the software?

   ____

4. Type of computer system you have?

   ____

5. How much memory does your computer have?

   ____

6. How many disk drives does your computer have?

   ____

7. Does your computer have a hard disk?

   ____

8. Can your system run the software?

   ____

ACTIVITY SHEET F 7.2 (continued)

9. How much memory is required by the software?

   ____

10. How many drives does the software require? 1 2

11. Does the software require a hard disk?

    ____

12. Is the user's manual for this software a good reference?

    ____

13. Is the tutorial a good guide for learning the software package? ______________

14. Can you make a backup copy? ___________

15. Can you purchase a backup copy? _______________

16. Is the procedure clear for doing a backup or purchasing a second copy? __________________

17. What type of software package are you evaluating?
    - Multifunctional __________________
    - Multiple disk series (modular) _______________
    - Operating environment ________________

18. What components are available for the integrated package?

    word processing ________
    telecommunications ________
    time management ___________
    outlining _________________
    data base __________
    spreadsheet _________
    graphics ____________
    other _______________

19. Does the package have the features you will need? __________

20. Is it difficult to use this package? _______________________

21. Does it give on-screen help? _______________________________

22. Did you have a hands-on demonstration? _____________________

23. Did you check with other users of the package? _____________

24. Were they satisfied? _______________________________________

25. What is the price of the package? __________________________

ACTIVITY SHEET F 7.2 (continued)

General comments about the package (optional)

AREA: Identify and Use Integrated Software

LEARNER OUTCOME: Evaluate an Integrated Software Package

LEARNER OUTCOME: F 7

PERFORMANCE/PRODUCT CHECKLIST

STUDENT ______________________________ PERFORMANCE ATTEMPT 1 2 3 4

EVALUATOR ____________________________ DATE ______________________

EVALUATION SITE ___________

TERMINAL PERFORMANCE OBJECTIVE:

Given a microcomputer system and an integrated software program, you will evaluate your integrated software package using the software checklist F 7.2.

DIRECTIONS TO THE STUDENT:

Before attempting this learner outcome for mastery, carefully review this checklist. You will be evaluated on the basis of this checklist. When you feel you are ready for evaluation, contact your instructor. You must complete your performance within 1 hour and must score at least 7 out of 7 points, or 100%. Critical items are marked with an asterisk (*). These items must be satisfactorily completed.

DIRECTIONS TO THE EVALUATOR:

The student will contact you when ready for evaluation. The student must complete the performance within 1 hour and must score 7 out of 7 points, or 100%. All items marked with an asterisk (*) must be satisfactorily completed.

NOTE**** The Performance/Product Checklist is a summary of Activity Sheet F 7.2, "Evaluating an Integrated Software Package," for evaluation purposes.

PERFORMANCE/PRODUCT CHECKLIST

F 7

Evaluate an Integrated Software Package

CRITICAL ITEMS	ITEMS TO BE OBSERVED OR CHECKED	RATING YES/NO
*1.	Is the package easy to learn?	
*2.	Is the package easy to use?	
*3.	Does the package include the features needed?	
*4.	Does the package require a large amount of memory?	
*5.	Is the package able to complete applications beyond the simple projects?	
*6.	Is the package compatible with existing hardware?	
*7.	Is a tutorial disk available for the package?	

TOTAL POINTS 7

POINTS NEEDED 7

SCORE

APPENDIX

A

SCIENCE/MATHEMATICS/WORK ETHIC/COMMUNICATION
CONCEPT ANALYSIS

APPENDIX

Overview

This appendix consists primarily of an analysis of the science and mathematics concepts that are considered prerequisite or co-requisite to understanding the content of the INFORMATION PROCESSING curriculum. The science and mathematics concepts are considered those that can be taught or should be taught as part of the Information Processing curriculum. Without a good grasp of the concepts included in this appendix, students are likely to have difficulty understanding the basic concepts of the information processing program. Also included in the appendix is a second analysis which identifies many concepts associated with establishing a strong work ethic and developing good communication skills. The concepts produced by this second analysis are also very important to understanding what is necessary to function effectively in the information processing area.

The Information Processing curriculum is organized around Content Areas, Duties, and Task Objectives. The concept analysis was accomplished by identifying the science, mathematics, work ethic, and communications concepts, principles, and skills that are associated with the tasks in each of the Duty Areas. There was no attempt to establish a one-to-one correspondence between task objectives and concepts within a Duty Area because many of the tasks require an understanding of the same concepts. In addition, the concepts are more associated with the Duty Area than they are with the individual task objectives.

Using the List

To use the concept lists produced by the analysis, you will first need to identify the Content Area of interest. Next, you will need to identify which Duty Area within the Content Area is of interest. Having identified the Duty Area, you will find four groups of concepts under the subheadings of Science, Mathematics, Work Ethic, and Communications. The concepts, principles and skills listed under these subheadings need to be understood in order for students to understand the information processing content associated with the Duty Area and the task objectives for that Duty Area.

Once the concepts associated with the task objectives for the Duty Area are known, it is possible to determine what, if any, steps need to be taken to insure that the students understand these concepts. This determination can be made in various ways such as examining students' success in previous course work and devising a system of pre-testing. If students do not understand these basic concepts, it will be necessary to teach the concepts as part of your program. It is important that the students possess knowledge from fields on which some of the information processing content is based as well as understand the content of Information Processing.

The list of concepts can also be used to help advise school personnel as to the knowledge and skills students should acquire in other areas of the school curriculum in order to do well in Information Processing and other curricular areas dealing with major societal problems and concerns about personal living. For example, by demonstrating how often certain science and mathematics concepts appear in the concept lists, it can be illustrated how important it is for the students to have a solid academic background in order to succeed in the Information Processing curriculum. This information and information from other examinations of the concept lists can be used to help shape the nature of the school curriculum and the content of courses in information processing and other fields. Examinations of the concept lists will also demonstrate the academic status of today's Information Processing curriculum and demonstrate the magnitude of the contribution that the Information Processing curriculum is making to increase students basic knowledge and skills in science, mathematics, work ethic and communications.

For further information about the math/science analysis you contact Dr. Alan Voelker, Ph.D. at NIU, DeKalb, Illinois.

Electronic Spreadsheets

Science: uses of knowledge, uses of technology, record and use data, prediciton, advantage, disadvantage, organization, attributes, spatial relationships, analyze data, magnetism, properties of magnets, estimation, relative size, relativity, problem-solving, development of technological devices, software, hardware, variation, decision-making, interpret data, accuracy, speed, relevant data, uses of computer, change, consumer research, cycles, balance, interaction, interdependence, inference, classification, compare and contrast, instantaneous, systems, subsystems, simple machines, energy transfer, decay, components, variables, identify and control variables, naming, cell, location observation, precision, cathode ray tube, energy effects

Mathematics: cost, efficiency, percent, percentage, area, units of measurement, number algorithm, calculations, basic arithmetic, calculator, computer, range, row, column, vertical, horizontal, plane, surface, rate, seriation, sorting, correspondence, sum, cycle, ratio, profit, formulas, value, time, operation, set, subset, budget, alphanumeric, alpha, numeric, volume, coordinated, axes, direction, quantity, length, width, maximum, minimum, total, value, graph, types of graphs, standards, norms decimals, place value, interger, continuous, part-whole relationships, greater than, less than, space, large, small, magnitude, combinations, grouping

Work ethic: use efficient methods for eliminating the causes of a problem, use correct equipment, use equipment properly, follow safety precautions, return equipment to proper storage area, work without the need for close supervision, follow instructions or directions in the performance of a specific task, equipment or other resources to perform the activities needed to accomplish a specific task, organize and maintain work area properly, revise or update periodically plans and activities for accomplishing a specific task, organize and maintain work area properly, demonstrate to someone how to perform a specific task, determine the order of the activities or step-by-step process by which a specific task can be accomplished

Communication: read, understand, and find information or gather data from books, manuals, directories, or other documents, read and understand forms, read and understand graphs, charts, and tables to obtain factual information, compose logical and understandable written correspondence, directives, memos, short notes, or reports, development and use of codes, symbols, and labeling systems

Records Management

Science: problem-solving, decision-making, systems, classification, subsystems, mental images, mental models, sorting, labeling (naming), attributes, criterial attributes, uses of knowledge, identify variables, control and manipulate variables, space, spatial relations, relationships, expansion, dichotomous key, gather data, interpret data record data, change, replication, speed, risk/benefit, conserve, conservation, multiple-use, properties of materials, inference, strength of materials, standards, micro, macro, energy, light energy, magnification

Mathematics: ordering, seriation, sequence, cost, time, intervals, sorting, numbering systems, units, areas, volume, size, magnitude, quantity, consecutive, set, subset, alternate, efficiency, direction, smaller than, larger than, dicotomy, multiple, part-whole relationships, norms, rules, loss, dimension, length, shorter than, longer than, estimation, percentage, percent, fraction, ratio, cost, friction, simple machines, numeric, scaling, scale drawings, increase, decrease, substitution

Work ethic: work effectively under different kinds of supervision, work without the need for close supervision, work effectively when time, pressure, or tension, are critical factors for job performance, take responsibility for the effects of one's own judgements, plan, carry out, and complete activities at one's own initiative, follow instructions or directions in the performance of a specific task, use correct equipment, use equipment properly

Communication: read, understand, and find information, gather data from books, manuals, directories, or other documents, read and understand forms, read and understand graphs, charts, and tables to obtain factual information, write logical and understandable statements, phrases, or sentences to accurately fill out forms

Data Base Management Systems

Science: data, identify and manipulate variables, record data, organize and use data, systems, classification, image, mental model, uses of knowledge, uses of technology, function, properties of materials, organization, magnetism, operational definition, communication, uses of symbols for communication, models, naming, switch, basic electricity, decision-making, problem-solving, estimation, limitation, category, accuracy relationships, accuracy, relationships, spatial relations, environment, environmental conditions, change interaction, theory, mixture

Mathematics: basic arithmetic, percent, percentage, set, subset, greater than, less than, sorting, grouping, attributes, criterial attributes, digit, number, alpha, numeric, list, unit, field, total, first, last, sequence, basic mathematical symbols, ordering, capacity, limits, alphanumeric, combination, value, range, decimals, calculations, equal to, basic probability, positive, negative, direction, location, area, length, width, column, row, minimum, maximum, dimensions, rules, increase, decrease, order, smallest, largest, read and write numbers, efficiency, frequency, rate, time, interval

Work ethic: follow instructions or directions in the performance of a specific task, work effectively under different kinds of supervision, work without the need for close supervision, instruct or direct someone in the performance of a specific task, demonstrate to someone how to perform a specific task, use correct equipment, use equipment properly, follow safety precautions, store equipment properly, enumerate the possible causes of the problem

Communication: creation and uses of symbols, read, understand and find information or gather data from books, manuals, directories or other documents, read and understand forms, read and understand graphs, charts, and tables to obtain information

Computer Business Graphics

Science: mental images, model building, forms of communication, cathoe ray tube, spatial relations, relative position, construct and interpret graphs, data, pictorial models, limitation, classification, period, patterns, relationship, compare and contrast, trend, population, change, space, input/output, visual image, observation, size, weight, forces, laser, uses of knowledge, speed, machines, problem solving, naming, systems, subsystems, record data, analyze data, interpret data, accuracy, degree of fit, decision-making, attributes, criterial attributes

Mathematics: function, coordinates, axis, line segment, line, vertical, horizontal, units of measurement, time, interval, value, amount, range, set, subset, numeric, types of graphs, continuous, adjacent, proportion, ratio, fraction, percent, percentage, point, frequency, direction, number, area, graph, figure, series, equivalent, matrix, flat, surfaces, total, calculate, decimals, part-whole relationships, length, width, dimensions, scale, capacity, low, high

Work ethic: read, understandable, and find information or gather data from books, manuals, directories, or other documents use efficient methods for eliminating the causes of a problem, work without the need for close supervision, follow instructions or directions in the performance of a specific task, try out or consciously attempt to use previously learned knowledge and skills in a new situation, carry out correctly written or oral instructions given by another, use correct equipment, use equipment properly

Communication: use appropriate abbreviations of words in writing and speaking, develop and use symbols to communicate, use labels properly; use appropriate labels

Telecommunications

Science: forms of communication, energy, forms of energy, energy conversion, energy transmission, electromagnetic spectrum, systems, subsystems, images, properties of materials, conduction, electromagnetism, waves, microwaves, sound, light, pictorial models, facsimile, continuous, oscillate, frequency, intensity, inverse square law, basic electricity, current, crest, through, speed, speed of light, satellite, light beam, fiber optics, optics terrestial, modulator, magnetism, electromagnetism, band, bandwidth, laser, circuit, conductors, metal, environment, limitation, uses of knowledge, signal, impulse(s), efficiency, interference, electrical energy, development of technology, devices and hardware, software, parameters, byte, classification, hybrid, cathode ray tube, luminescence, excitation, multiple use, decision-making, criterial attributes, data, electrical circuit, switch, coaxial cable, data analysis, micro, microcircuit, microwave, resolution

Mathematics: analog, digital, proportion, continuous, discrete, curve, types of curves, coordinates, time, intervals, quantity, diameter, area, cross-section, rate, accuracy, magnitude, powers of ten, cost, efficiency, set, subset, width, dimensions, units of measurement, percent, percentage, fractions, ration, interactive combinations, greater than, less than, cost-effective, capacity, calculate, range, dichotomy, increase, decrease, counting systems, spatial relations, geometric shapes, direction, optimum, limits, alternate, graph, multiples, orders of magnitude, place value, binary, parallel, real time, seriation

Work Ethic: follow instructions or directions in the performance of a specific task, user correct equipment, use equipment properly, follow safety precautions, demonstrate to someone how to perform a specific task, work without the need for close supervision, try out or consciously attempt to use previously learned knowledge and skills in a new situation, set priorities or the order in which several tasks will be accomplished

Communication: compose logical and understandable written correspondence, directives, memos, short notes, or reports, write logical and understandable statements, phrases, or sentences to accurately fill out forms, uses of symbols to communicate, read, understand, and find information or gather the from books, manuals, directories or other documents, read and understand graphs, charts and tables to obtain factual information, non-verbal communication, speak with others in a relaxed and self-confident manner, organize ideas and put them into words rapidly in oral and written communication

Integrated Software

Science: system, subsystem, uses of knowledge, development of technology, pictorial models, graphics, data, organization, record and use data, prediction, compare and contrast, classification, multiple-use, communication, environment, decision-making, location, attributes, cell, interaction, magnetism, cathode ray tube, problem-solving, basic electricity, energy transfer, speed, similarity, diversity, manipulate data, naming, power, variable, variation, weight, structure, evaluate, generate ideas/concepts, accuracy, magnification, observation, estimation, relationships, charts, pattern, critical thinking, technological device, signal, switch, identify and control variables

Mathematics: basic arithmetic, percent, percentage, function, linear dimensions, area, set, subset, part/whole relationships, single, multiple, budget, graph, volume, spatial relationships, operation, coordinates, column, row, intersection, interest, compound interest, millimeter units of measurement, measurement, unit abbreviations, types of graphs, rate time, combinations, greater than, less than, equal to, cost, lower, higher, series, sequence, length, width, empty set, number, arithmetic operation, calculation, calculator, computer, numeric, alphabetic, alphanumeric, point, direction, magnitude, formula, total, value, place value, amount, vertical, horizontal, time intervals, week, month, average, summation, scattergram, trend, axis, x-axis, y-axis, grid, scaling, reliability, range, alpha, advantage, disadvantage, interpolate, extrapolate, curve, efficiency, data transformation

Work Ethic: follow instructions or directions in the performance of a specific task, set priorities or the order in which specific tasks will be accomplished, work without the need for close supervision, work under different kinds of supervision, use correct equipment, use equipment properly, follow safety precautions, store equipment properly

Communication: read, understand, and find information or gather data from books, manuals, directories or other documents, read and understand forms, read and understand graphs, charts, and tables to obtain factual information, compose logical, and understandable written correspondence, directives, memos, short notes, or reports

APPENDIX

B

INFORMATION PROCESSING CROSSWALK

CROSSWALK OF THE EDUCATION FOR EMPLOYMENT INFORMATION PROCESSING GUIDE

Purpose

The purpose of this crosswalk is to assist business education instructors in crosswalking learner outcomes from the ETE Information Processing Guide to the Illinois State Board of Education/Department of Adult, Vocational and Technical Education tasks which are applicable to the Information Processing area.

Organization of ETE Information Processing Guide

The ETE Information Processing Guide has six areas as follows:

Area $A_1 - A_{13}$ – Identify and Use Electronic Spreadsheets
Area $B_1 - B_7$ – Perform Records Management Duties
Area $C_1 - C_{13}$ – Data Base Management Systems
Area $D_1 - D_9$ – Computer Business Graphics
Area $E_1 - E_{11}$ – Telecommunications (Includes the Modem)
Area $F_1 - F_7$ – Integrated Software

Organization of Crosswalk

On the left hand side of the crosswalk are the duties and tasks from the ISBE/DAVTE task lists. Tasks from the ISBE/DAVTE task list may be defined as "a work activity which has a definite beginning and ending; is observable or measurable; and leads to a product, service or decision." Related tasks have been clustered into duty areas on the task list. Duties have been arranged in alphabetical order. Tasks have also been arranged in alphabetical order under the related duty. Occupations for which task lists are available from ISBE/DAVTE and for which there are applicable tasks are given following the listing of the duty. Please note example on the next page.

On the right hand side of the crosswalk are the area and learner outcome number. Learner outcome in the ETE Information Processing Guide is defined as a unit of instruction which enables a student to complete a task. Related learner outcome statements are grouped together to form areas in the ETE Information Processing Guide. Learner outcome statements are applicable to teaching the task listed on the left hand side. Please note example on the next page.

CROSSWALK OF THE EDUCATION FOR EMPLOYMENT INFORMATION PROCESSING GUIDE

APPLICABLE DUTIES AND TASKS FROM ILLINOIS STATE BOARD OF EDUCATION/DEPARTMENT OF VOCATIONAL AND TECHNICAL EDUCATION	EDUCATION FOR TECHNOLOGY EMPLOYMENT (ETE) INFORMATION PROCESSING GUIDE		
Duty: Inputting and Storing Documents (This duty area is found in the following occupations: Word Processor, Information Specialist, Stenographer, Secretary, Medical Secretary, Terminal Operator, Receptionist and Typist.)	Area: Electronic Spreadsheets and Data Base		
	Area	Learner Outcome #	Learner Outcome Statement
Task: Create back-up file	A	2	Load and Exit DOS and Spreadsheet Software
	C	10	Identify and Complete Disk Management Procedures Such As Copying, Renaming, and Passwords Protecting a Data File

---

In this example, the instructor might be preparing students for one of the occupations listed after the duty area, i.e., Word Processor, Information Specialist, Stenographer, Secretary, Legal Secretary, Medical Secretary, Terminal Operator, Receptionist and Typist and wanted more information on how to teach the task "Create back-up file." If so, the instructor could look under areas A and C in the Information Processing Guide and receive assistance. In area A, learner outcome 2 and in area C, learner outcome 10, the instructor would find information about teaching the task from the occupational task lists.

CROSSWALK OF THE EDUCATION FOR EMPLOYMENT INFORMATION PROCESSING GUIDE

APPLICABLE DUTIES AND TASKS FROM ILLINOIS STATE BOARD OF EDUCATION/DEPARTMENT OF VOCATIONAL AND TECHNICAL EDUCATION

Duty: Editing and Correcting Documents, Records and Files
(This duty area is found in the following occupations: Receptionist, Typist, Word Processor, Information Specialist, Stenographer, Secretary, Legal Secretary, Medical Secretary, and Terminal Operator.)

EDUCATION FOR TECHNOLOGY EMPLOYMENT (ETE) INFORMATION PROCESSING GUIDE

Area: Electronic Spreadsheets, Data Base, Business Graphics and Integrated Software

	Area	Learner Outcome #	Learner Outcome Statement
Task: Copy one diskette to another	A	2	Load and Exit DOS and Spreadsheet Software
	C	10	Identify and Complete Disk Management Procedures Such As Copying, Renaming, and Passwords Protecting a Data File
Task: Delete data from backup file	C	10	Identify and Complete Disk Management Procedures Such As Copying, Renaming, and Passwords Protecting a Data File
Task: Delete text or data from storage	C	10	Identify and Complete Disk Management Procedures Such As Copying, Renaming, and Passwords Protecting a Data File
Task: Process text and data using integrated software	F	1	Identify Integrated Software Concepts and Terms
	F	2	Identify and Complete the Procedures for Loading an Integrated Software Package and Selecting Options from the Menu
	F	3	Select the Data Base Module and Create a Data Base File
	F	4	Select the Spreadsheet Module and Create a Spreadsheet File
	F	5	Select the Graphics Module and Create a Graph of Existing Data

CROSSWALK OF THE EDUCATION FOR EMPLOYMENT
INFORMATION PROCESSING GUIDE

APPLICABLE DUTIES AND TASKS FROM ILLINOIS STATE BOARD OF EDUCATION/DEPARTMENT OF VOCATIONAL AND TECHNICAL EDUCATION	EDUCATION FOR TECHNOLOGY EMPLOYMENT (ETE) INFORMATION PROCESSING GUIDE
Duty: Editing and Correcting Documents, Records and Files (This duty area is found in the following occupations: Receptionist, Typist, Word Processor, Information Specialist, Stenographer, Secretary, Legal Secretary, Medical Secretary, and Terminal Operator.)	Area: Electronic Spreadsheets, Data Base, Business Graphics and Integrated Software

	Area	Learner Outcome #	Learner Outcome Statement
Task: Process text and data using integrated software	F	6	Select the Word Processing Module and Create a Final Report by Integrating Information from Data Base/Spreadsheet Files
Task: Rename files	C	10	Identify and Complete Disk Management Procedures Such As Copying, Renaming, and Passwords Protecting a Data File
Task: Update data on graphs and charts	D	3	Set Up, Create, Edit and Print a Computer Business Graphics Application
Task: Update data on spreadsheets	A	5	Enter Data on an Existing Spreadsheet and Store the Spreadsheet
	A	6	Design, Enter and Save Data on Spreadsheets
	A	7	Recall, Modify and Print a Spreadsheet
Task: Update existing records in data base files	C	4	Enter and Edit Data Using the Defined Screen Format
	C	5	Use Simple Search or Query Commands to Select Information from a Data Base for Displaying or Printing
	C	6	Identify and Complete Procedures for Inserting/Appending, Modifying, and Deleting Records in the Data Base
	C	11	Identify and Complete the Procedures for Renaming Fields and for Modifying the Structure of a Data Base

CROSSWALK OF THE EDUCATION FOR EMPLOYMENT INFORMATION PROCESSING GUIDE

APPLICABLE DUTIES AND TASKS FROM ILLINOIS STATE BOARD OF EDUCATION/DEPARTMENT OF VOCATIONAL AND TECHNICAL EDUCATION	EDUCATION FOR TECHNOLOGY EMPLOYMENT (ETE) INFORMATION PROCESSING GUIDE		
Duty: Filing Materials Manually (This duty area is found in the following occupations: Receptionist, Typist, Word Processor, Information Specialist, Stenographer, Secretary, Legal Secretary, and Medical Secretary.)	Area: Records Management		
	Area	**Learner Outcome #**	**Learner Outcome Statement**
Task: Code materials for filing	B	1	Define the Five Steps of Filing--Inspecting, Coding, Sorting, and Storing Business Documents
Task: Establish cross referencing system	B	3	Identify the Procedures to Use a Cross Reference System
Task: Establish file checkout system	B	4	Identify the Procedures to Retrieve Information From the Files and Develop a Charge-out Reference System
Task: Establish manual filing system	B	2	Identify the Rules and Procedures to Establish and Maintain Alphabetic, Numeric, Geographic, and Subject Systems
Task: File materials using alphabetic filing systems	B	2	Identify the Rules and Procedures to Establish and Maintain Alphabetic, Numeric, Geographic, and Subject Systems
Task: File materials using numeric filing systems	B	2	Identify the Rules and Procedures to Establish and Maintain Alphabetic, Numeric, Geographic, and Subject Systems

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Duty: Filing Materials Manually (This duty area is found in the following occupations: Receptionist, Typist, Word Processor, Information Specialist, Stenographer, Secretary, Legal Secretary, and Medical Secretary.)

Area: Records Management

	Area	Learner Outcome #	Learner Outcome Statement
Task: File materials using subject filing systems	B	2	Identify the Rules and Procedures to Establish and Maintain Alphabetic, Numeric, Geographic, and Subject Systems
Task: Locate Misfiles	B	5	Identify the Procedures to Locate Misfiles and to Use Filing Supplies and Equipment Correctly
Task: Maintain non-electronic filing system	B	2	Identify the Rules and Procedures to Establish and Maintain Alphabetic, Numeric, Geographic, and Subject Systems
	B	3	Identify the Procedures to Use a Cross Reference System
	B	4	Identify the Procedures to Retrieve Information From the Files and Develop a Charge-out Reference System
	B	5	Identify the Procedures to Locate Misfiles and to Use Filing Supplies and Equipment Correctly
Task: Retrieve materials from files	B	4	Identify the Procedures to Retrieve Information From the Files and Develop a Charge-out Reference System
Task: Retrieve materials stored on microfilm or microfiche	B	6	Explore micrographics

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Duty: Filing Materials Manually (This duty area is found in the following occupations: Receptionist, Typist, Word Processor, Information Specialist, Stenographer, Secretary, Legal Secretary, and Medical Secretary.)	Area: Records Management		
	Area	**Learner Outcome #**	**Learner Outcome Statement**
Task: Revise file checkout system	B	4	Identify the Procedures to Retrieve Information From the Files and Develop a Charge-out Reference System
Task: Secure classified or confidential files	B	4	Identify the Procedures to Retrieve Information From the Files and Develop a Charge-out Reference System
Task: Sort materials for alphabetic filing	B	1	Define the Five Steps of Filing--Inspecting, Coding, Sorting, and Storing Business Documents
	B	2	Identify the Rules and Procedures to Establish and Maintain Alphabetic, Numeric, Geographic, and Subject Systems
Task: Sort materials for numeric filing	B	1	Define the Five Steps of Filing--Inspecting, Coding, Sorting, and Storing Business Documents
	B	2	Identify the Rules and Procedures to Establish and Maintain Alphabetic, Numeric, Geographic, and Subject Systems

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Duty: Filing Materials Manually (This duty area is found in the following occupations: Receptionist, Typist, Word Processor, Information Specialist, Stenographer, Secretary, Legal Secretary, and Medical Secretary.)

Area: Records Management

	Area	Learner Outcome #	Learner Outcome Statement
Task: Sort materials for subject filing	B	1	Define the Five Steps of Filing--Inspecting, Coding, Sorting, and Storing Business Documents
	B	2	Identify the Rules and Procedures to Establish and Maintain Alphabetic, Numeric, Geographic, and Subject Systems
Task: Update cross referencing system and file index system	B	4	Identify the Procedures to Retrieve Information From the Files and Develop a Charge-out Reference System
Task: Update filing system and files	B	5	Identify the Procedures to Locate Misfiles and to Use Filing Supplies and Equipment Correctly

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Duty: Inputting and Storing Documents and Files
(This duty area is found in the following occupations: Receptionist, Typist, Word Processor, Information Specialist, Stenographer, Secretary, Legal Secretary, Medical Secretary, and Terminal Operator.)

Area: Electronic Spreadsheets, Data Base, Business Graphics and Integrated Software

	Area	Learner Outcome #	Learner Outcome Statement
Task: Create backup file (Prepare backup files)	A	2	Load and Exit DOS and Spreadsheet Software
	C	10	Identify and Complete Disk Management Procedures Such As Copying, Renaming, and Passwords Protecting a Data File
Task: Initialize diskettes	A	2	Load and Exit DOS and Spreadsheet Software
	C	2	Identify and Complete the Procedures for Loading the Data Base System Disk and for Formatting the Data Disk
	F	2	Identify and Complete the Procedures for Loading an Integrated Software Package and Selecting Options from the Menu
Task: Input data into graphs and charts	D	1	Define Computer Business Graphics
	D	3	Set up, Create, Edit and Print a Computer Business Graphics Application
	D	4	Design and Produce Simple Line, Bar, and Pie Graphs
	D	5	Design and Produce Complex Line, Bar, and Pie Graphs
	D	6	Design and Produce Scatter Graphs
	D	7	Design and Produce Area Graphs
	F	5	Select the Graphics Module and Create a Graph of Existing Data

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APPLICABLE DUTIES AND TASKS FROM ILLINOIS STATE BOARD OF EDUCATION/DEPARTMENT OF VOCATIONAL AND TECHNICAL EDUCATION

Duty: Inputting and Storing Documents and Files
(This duty area is found in the following occupations: Receptionist, Typist, Word Processor, Information Specialist, Stenographer, Secretary, Legal Secretary, Medical Secretary, and Terminal Operator.)

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Area: Electronic Spreadsheets, Data Base, Business Graphics and Integrated Software

	Area	Learner Outcome #	Learner Outcome Statement
Task: Input data into spreadsheet formats	A	1	Identify the Uses and Advantages of Electronic Spreadsheets
	A	2	Load and Exit DOS and Spreadsheet Software
	A	3	Identify the Basic Components of Spreadsheets and Operate Special Function Keys
	A	5	Enter Data on an Existing Spreadsheet and Store the Spreadsheet
	A	6	Design, Enter, and Save Data on Spreadsheets
	A	8	Design a Spreadsheet Containing Formulas
	A	9	Use Window and Title Options on a Spreadsheet
	A	10	Build a Supporting Spreadsheet
	A	11	Combine Spreadsheets
	F	4	Select the Spreadsheet Module and Create a Spreadsheet File
Task: Input records into data base files	C	1	Identify and Define General Data Base Concepts and Terminology
	C	2	Identify and Complete the Procedures for Loading the Data Base System Disk and for Formatting the Data Disk
	C	3	Create a Data Base, Define and Enter the Data Base Structure

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APPLICABLE DUTIES AND TASKS FROM ILLINOIS STATE BOARD OF EDUCATION/DEPARTMENT OF VOCATIONAL AND TECHNICAL EDUCATION

Duty: Inputting and Storing Documents and Files
(This duty area is found in the following occupations: Receptionist, Typist, Word Processor, Information Specialist, Stenographer, Secretary, Legal Secretary, Medical Secretary, and Terminal Operator.)

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Area: Electronic Spreadsheets, Data Base, Business Graphics and Integrated Software

	Area	Learner Outcome #	Learner Outcome Statement
Task: Input records into data base files	C	4	Enter and Edit Data Using the Defined Screen Format
	F	3	Select the Data Base Module and Create a Data Base File
Task: Store documents on diskettes	A	2	Load and Exit DOS and Spreadsheet Software
	A	3	Identify the Basic Components of Spreadsheets and Operate Special Function Keys
	A	5	Enter Data on an Existing Spreadsheet and Store the Spreadsheet
	A	6	Design, Enter, and Save Data on Spreadsheets
	A	8	Design a Spreadsheet Containing Formulas
	A	9	Use Window and Title Options on a Spreadsheet
	A	10	Build a Supporting Spreadsheet
	A	11	Combine Spreadsheets
	D	3	Set up, Create, Edit and Print a Computer Business Graphics Application
	D	4	Design and Produce Simple Line, Bar, and Pie Graphs
	D	5	Design and Produce Complex Line, Bar, and Pie Graphs
	D	6	Design and Produce Scatter Graphs
	D	7	Design and Produce Area Graphs

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APPLICABLE DUTIES AND TASKS FROM ILLINOIS STATE BOARD OF EDUCATION/DEPARTMENT OF VOCATIONAL AND TECHNICAL EDUCATION

Duty: **Inputting and Storing Documents and Files**
(This duty area is found in the following occupations: Receptionist, Typist, Word Processor, Information Specialist, Stenographer, Secretary, Legal Secretary, Medical Secretary, and Terminal Operator.)

Task: Store documents on diskettes

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Area: Electronic Spreadsheets, Data Base,
Business Graphics and Integrated Software

Area	Learner Outcome #	Learner Outcome Statement
C	3	Create a Data Base, Define and Enter the Data Base Structure
C	4	Enter and Edit Data Using the Defined Screen Format
C	6	Identify and Complete the Procedures for Inserting/Appending, Modifying, and Deleting Records in the Data Base Structure of a Data Base
F	3	Select the Data Base Module and Create a Data Base File
F	4	Select the Spreadsheet Module and Create a Spreadsheet File
F	5	Select the Graphics Module and Create a Graph of Existing Data
F	6	Select the Word Processing Module and Create a Final Report by Integrating Information from Data Base/Spreadsheet Files

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APPLICABLE DUTIES AND TASKS FROM ILLINOIS STATE BOARD OF EDUCATION/DEPARTMENT OF VOCATIONAL AND TECHNICAL EDUCATION	EDUCATION FOR TECHNOLOGY EMPLOYMENT (ETE) INFORMATION PROCESSING GUIDE
Duty: Performing Clerical Activities (This duty area is found in the following occupations: Receptionist, Typist, Word Processor, Information Specialist, Stenographer, Secretary, Legal Secretary, Medical Secretary, Terminal Operator, Computer Operator, Bookkeeper, Bookkeeper - Machine Operator, Payroll Clerk, Payroll Clerk - Data Processing, Accounting Clerk, Accounting Clerk - Data Processing.)	Area: Data Base, Telecommunications, and Records Management

	Area	Learner Outcome #	Learner Outcome Statement
Task: File materials using alphabetic filing systems	B	2	Identify the Rules and Procedures to Establish and Maintain Alphabetic, Numeric, Geographic, and Subject Systems
Task: File materials using numeric filing systems	B	2	Identify the Rules and Procedures to Establish and Maintain Alphabetic, Numeric, Geographic, and Subject Systems
Task: File materials using subject filing systems	B	2	Identify the Rules and Procedures to Establish and Maintain Alphabetic, Numeric, Geographic, and Subject Systems
Task: Maintain system access security	C	10	Identify and Complete Disk Management Procedures Such As Copying, Renaming, and Passwords Protecting a Data File
Task: Process incoming telephone calls	E	3	Telephone Systems
Task: Process outgoing telephone calls	E	3	Telephone Systems

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Duty: Performing Clerical Activities
(This duty area is found in the following occupations: Receptionist, Typist, Word Processor, Information Specialist, Stenographer, Secretary, Legal Secretary, Medical Secretary, Terminal Operator, Computer Operator, Bookkeeper, Bookkeeper - Machine Operator, Payroll Clerk, Payroll Clerk - Data Processing, Accounting Clerk, Accounting Clerk - Data Processing.)

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Area: Data Base, Telecommunications, and Records Management

	Area	Learner Outcome #	Learner Outcome Statement
Task: Set up new files	B	1	Define the Five Steps of Filing—Inspecting, Indexing, Coding, Sorting, and Storing Documents
	B	2	Identify the Rules and Procedures to Establish and Maintain Alphabetic, Numeric, Geographic, and Subject Systems

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APPLICABLE DUTIES AND TASKS FROM ILLINOIS STATE BOARD OF EDUCATION/DEPARTMENT OF VOCATIONAL AND TECHNICAL EDUCATION	EDUCATION FOR TECHNOLOGY EMPLOYMENT (ETE) INFORMATION PROCESSING GUIDE		
Duty: Performing Telecommunications Activities (This duty area is found in the following occupations: Stenographer, Secretary, Legal Secretary, Medical Secretary, Receptionist and Typist.)	Area: Telecommunications		
	Area	Learner Outcome #	Learner Outcome Statement
Task: Process incoming telephone calls	E	3	Telephone Systems
Task: Process outgoing telephone calls	E	3	Telephone Systems

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APPLICABLE DUTIES AND TASKS FROM ILLINOIS STATE BOARD OF EDUCATION/DEPARTMENT OF VOCATIONAL AND TECHNICAL EDUCATION

Duty: Preparing Written Communications (This duty area is found in the following occupations: Stenographer, Secretary, Legal Secretary, Medical Secretary.)

Task: Prepare and send cablegrams, telegrams, and mailgrams

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Area: Telecommunications

Area	Learner Outcome #	Learner Outcome Statement
E	1	Define and Identify the Major Delivery Methods of Telecommunications
E	2	Electronic Mail Services

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APPLICABLE DUTIES AND TASKS FROM ILLINOIS STATE BOARD OF EDUCATION/DEPARTMENT OF VOCATIONAL AND TECHNICAL EDUCATION	EDUCATION FOR TECHNOLOGY EMPLOYMENT (ETE) INFORMATION PROCESSING GUIDE		
Duty: Printing, Distributing, and Receiving Output (This duty area is found in the following occupations: Stenographer, Secretary, Legal Secretary, Medical Secretary, Word Processor, Information Specialist, and Typist.)	Area: Telecommunications, Electronic Spreadsheets, Data Base, Business Graphics and Integrated Software		
	Area	Learner Outcome #	Learner Outcome Statement
Task: Monitor electronic bulletin board or electronic mail	E	1	Define and Identify the Major Delivery Methods of Communications
	E	2	Electronic Mail Services
	E	5	Use Appropriate Teleconferencing Systems and Services
	E	6	Learn What Modems Are, How They Work, and How to Choose One
	E	7	Plug in Your Networker Modem and Boot Your Communication Disk
	E	8	Learn How to Use the Main Menu and Its Variations
	E	9	Learn How to Send and Receive Messages
	E	10	Edit and Transmit Files
Task: Print documents or reports using continuous-feed (fanfold or pinfeed) paper	A	4	Print a Spreadsheet
	C	7	Design and Define a Report Format and Print a Report
	C	8	Define the Report Specifications Involving Arithmetic and Logical Operations, and Print a Report
	D	2	Identify Computer Business Graphics Output Devices
	D	3	Set Up, Create, Edit, and Print a Computer Business Graphics Application

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Duty: Printing, Distributing, and Receiving Output (This duty area is found in the following occupations: Stenographer, Secretary, Legal Secretary, Medical Secretary, Word Processor, Information Specialist, and Typist.)

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Area: Telecommunications, Electronic Spreadsheets, Data Base, Business Graphics and Integrated Software

	Area	Learner Outcome #	Learner Outcome Statement
Task: Print documents or reports using continuous-feed (fanfold or pinfeed) paper	F	5	Select the Graphics Module and Create a Graph of Existing Data
	F	6	Select the Word Processing Module and Create a Final Report by Integrating Information from Data Base/Spreadsheet Files
Task: Print information according to sort criteria	C	9	Define and Complete the Procedures for Sorting and/or Indexing the Data Base, and Print a Report
Task: Receive (data) documents or reports via modem	E	6	Learn What Modems Are, How They Work, and How to Choose One
	E	7	Plug in Your Networker Modem and Boot Your Communication Disk
	E	8	Learn How to Use the Main Menu and Its Variations
	E	9	Learn How to Send and Receive Messages
Task: Transmit communications using electronic bulletin board or electronic mail	E	1	Define and Identify the Major Delivery Methods of Communications
	E	2	Electronic Mail Services
	E	5	Use Appropriate Teleconferencing Systems and Services
	E	6	Learn What Modems Are, How They Work, and How to Choose One

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APPLICABLE DUTIES AND TASKS FROM ILLINOIS STATE BOARD OF EDUCATION/DEPARTMENT OF VOCATIONAL AND TECHNICAL EDUCATION

Duty: Printing, Distributing, and Receiving Output (This duty area is found in the following occupations: Stenographer, Secretary, Legal Secretary, Medical Secretary, Word Processor, Information Specialist, and Typist.)

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Area: Telecommunications, Electronic Spreadsheets, Data Base, Business Graphics and Integrated Software

	Area	Learner Outcome #	Learner Outcome Statement
Task: Transmit communications using electronic bulletin board or electronic mail	E	7	Plug in Your Networker Modem and Boot Your Communication Disk
	E	8	Learn How to Use the Main Menu and Its Variations
	E	9	Learn How to Send and Receive Messages
	E	10	Edit and Transmit Files
Task: Transmit (data) documents or reports via modems	E	6	Learn What Modems Are, How They Work, and How to Choose One
	E	7	Plug in Your Networker Modem and Boot Your Communication Disk
	E	8	Learn How to Use the Main Menu and Its Variations
	E	9	Learn How to Send and Receive Messages
	E	10	Edit and Transmit Files

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Duty: Processing Data Using Computer Equipment (This duty area is found in the following occupations: Computer Operator.)	Area: Data Base, Electronic Spreadsheets and Integrated Software		
	Area	Learner Outcome #	Learner Outcome Statement
Task: Copy files for backup or media conversion	A	2	Load and Exit DOS and Spreadsheet Software
	C	10	Identify and Complete Disk Management Procedures Such As Copying, Renaming, and Passwords Protecting a Data File
Task: Load operating system	A	2	Load and Exit DOS and Spreadsheet Software
	C	2	Identify and Complete the Procedures for Loading the Data Base System Disk and for Formatting the Data Disk
Task: Load programs, files, or data bases	A	2	Load and Exit DOS and Spreadsheet Software
	C	2	Identify and Complete the Procedures for Loading the Data Base System Disk and for Formatting the Data Disk
	F	2	Identify and Complete the Procedures for Loading an Integrated Software Package and Selecting Options from the Menu
Task: Receive data from remote users	E	6	Learn What Modems Are, How They Work, and How to Choose One
	E	7	Plug in Your Networker Modem and Boot Your Communication Disk
	E	8	Learn How to Use the Main Menu and Its Variations
	E	9	Learn How to Send and Receive Messages

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Some tasks from the ISBE/DAVTE occupational task lists have not been crosswalked. However, a number of the tasks which have not been crosswalked from the ISBE/DAVTE list though not related directly to the learner outcomes could be partially accomplished using some of the learner outcomes. For example: such varied tasks as "Maintain mailing lists electronically, Control merchandise inventory using computer, Control equipment inventory using computer" can be accomplished using DATABASE MANAGEMENT SYSTEM LEARNER OUTCOMES C1 to C9. IDENTIFY AND USE ELECTRONIC SPREADSHEET LEARNER OUTCOMES A1 TO A9 might be used to accomplish the following tasks: "Maintain fee schedule on computer or word processor and Prepare financial statements using computer."